COMPETENCIES NEEDED TO PREPARE INTERMEDIATE LIFE SUPPORT (ILS) PARAMEDICS IN GAUTENG TO MANAGE TRAUMATIC STRESS IN THE WORK ENVIRONMENT

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Declaration:

I, Tony Zana, hereby declare that the work contained in this thesis is my original work. I further submit that neither this thesis nor any part of this thesis has been previously submitted for a degree at any other university.

Signed by candidate

Signature..... **Date 13 August 2019**

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EMS	EMERGENCY MEDICAL SERVICE
PTSD	POST TRAUMATIC STRESS DISORDER
BLS	BASIC LIFE SUPPORT
ILS	INTERMEDIATE LIFE SUPPORT
ALS	ADVANCE LIFE SUPPORT
HPCSA	HEALTH PROFESSION COUNCIL OF SOUTH AFRICA
CCA	CRITICAL CARE ASSISTANCE
ECT	EMERGENCY CARE TECHNICIAN
BTECH	BACHELOR OF TECHNOLOGY
USA	UNITED STATES OF AMERICA
DOH	DEPARTMENT OF HEALTH
MVA	MOTOR VEHICLE ACCIDENT
PVA	PADESTRIAN VEHICLE ACCIDENT
RTA	ROAD TRAFFIC ACCIDENT
SAPS	SOUTH AFRICAN POLICE SERVICE
CBE	COMPETENCY BASED EDUCATION
OBE	OUTCOME BASED EDUCATION
DHET	DEPARTMENT OF HIGHER EDUCATION AND TRAINING
ETD	EDUCATION TRAINING AND DEVELOPMENT
CBME	COMPETENCY BASED MEDICAL EDUCATION
WHO	WORLD HEALTH ORGANISATION
FGD	FOCUS GROUP DISCUSSION
CPR	CARDIO PULMONARY RESUSUITATION

Working definitions

Traumatic calls: Incidences characterised by disturbing sights. These can be decapitated bodies, seriously injured persons among other such scenes.

Biopsychosocial: a term that denotes biological, psychological, and social factors and their complex interactions in understanding health, illness, and health care delivery.

PTSD: a disorder that develops in people who have experienced a traumatic, shocking, scary or dangerous event or if they suffer from secondary or vicarious trauma, which is often the case with paramedics and other emergency care workers.

Coping mechanisms: Sustained altering of behavioural and cognitive efforts to manage definite external and/or internal demands that are viewed as burdensome on an individual (Lazarus & Folkman, 1984).

Self-care: Self-care broadly indicates strategies that professionals treating patients in traumatic environments will use to enhance their well-being and to mitigate the negative impact of their experience (Wilkinson & Whitehead, 2009).

Competencies: the ability to do something efficiently or successfully

ABSTRACT

This qualitative study explored the effects of trauma as well as coping mechanisms used to deal with post-traumatic stress experienced by ILS paramedics providing emergency care services in the Gauteng Province, South Africa. It also looked at the competencies needed to cope with traumatic stress and promote biopsychosocial well-being.

It is argued that it is important to look at this subject from a South African perspective since most of the published research on the sources and effects of trauma on paramedics and other frontline emergency services personnel experience comes from developed countries. It was discovered that there is minimal empirical research from South Africa on similar topics, except for a study in the Cape Town metropole. In addition to that, most published research relied on quantitative data collection methods. Through qualitative case study research this thesis draws on observations and relevant data gathered by way of semi-structured face to face interviews with eleven operational Intermediate Life Support (ILS) paramedics who work in the Gauteng province.

Data is gathered on the sources of stress and coping mechanisms currently used by the paramedics. The gathered data was analysed using thematic analysis. The results show that the sources of stress for paramedics include attending gruesome scenes, extreme pressure to save lives and attending a scene where a child or a colleague is involved. It was also observed that the paramedics have a set of coping strategies to manage post-traumatic stress which are both positive and negative coping strategies. In addition to interviews with ILS paramedics from whom data is gathered on their education and training, the results in this thesis gathered insight from a panel of six experts who were engaged through a focus group discussion.

These experts have demonstrable expertise in curriculum development, trauma counselling and training. The panel recommended that the training of the paramedics must be more realistic such that the paramedics are better equipped to deal with the challenges they may encounter in the work environment. It was also revealed that those who train paramedics are not well equipped to deliver the health and wellness module. It can be concluded that some paramedics are not well equipped to deal with traumatic events they encounter in the field.

The researcher recommends that the health and wellness module be delivered by people who are specifically trained to deal with mental health issues. Insights gathered in this study will help the paramedics, those they help and their families.

CHAPTER 1: INTRODUCTION

South Africa is notorious for being one of the most violent countries in the world. It has a high murder, accident and general crime rate. One of the consequences of this crisis is that the country needs an efficient emergency response system, which operates like a well-oiled machine. There is evidence suggesting that South African paramedics are exposed to much higher degrees of traumatic incidents in comparison to other countries (Minnie *et al.*, 2015). Table 1 gives South African Police Services (SAPS) statistics on serious crime reported within the Gauteng Province during 2016 and 2017.

Table 1 SAPS statistics on serious crime in the Gauteng Province - 2016 and 2017 (SAPS, 2018)

Incident	Stats 2016	Stats 2017
Murders	3842	4099
Sexual offences	9510	9515
Assaults	42790	42448
Motor Vehicle accidents	2385	2398

In order for paramedics to be effective they need appropriate and well-functioning equipment. Pertinently too they should be well trained and be in optimal health themselves. It is universally known that

Research has shown that paramedics are among the most stressed professionals in the world (Fjeldheim *et al.*, 2014). Within this context training institutions should place great emphasis on equipping the paramedics with the necessary skills and resources to effectively deal with this stress. If not properly managed, the health of these professionals will be affected, which in turn will affect the quality of care they render to patients. Poor quality care could seriously hinder the recovery of patients and may even result in avoidable death. The weight of this traumatic burden of guilt on the paramedic could lead to depression and even suicide.

In Gauteng, where this research was conducted, the nature of traumatic incidents that paramedics are exposed to while conducting their work is emotionally and physically challenging. This places the paramedics at risk of physical, emotional and psychological harm.

There are several incidents that potentially cause stress and trauma in paramedics. Some incidents appear to cause more trauma than others, particularly those that include situations involving children, handling dead and decapitated bodies, attending dying and critically injured patients, attending to patients who are known to the paramedics as well as incidents where patients die during attempts to resuscitate them (Kirby *et al.*, 2011).

In addition to the stress and trauma associated with attending to victims of crime and accident scenes, paramedics are increasingly being targeted by criminals (TopNews, 2015; News24, 2017). This increases the levels of anxiety and stress experienced by the paramedics. In one particularly horrendous case in Gauteng, a female paramedic was raped while treating a toddler who had suffered burn wounds (www.news24.com, 2011-10-07 10:34). It is pertinent to note that research has shown that incidents of this kind are not unique to South Africa, but occur across the globe. One example from BBC News, (2015), reported that a study in England showed that 47% of North West ambulance services staff had reported being attacked and sexually assaulted. A study by Maguire *et al.* (2018) conducted in Australia also found that emergency care workers were attacked and assaulted, Minnie *et al.* (2015) conducted in Cape Town (South Africa) also found that emergency care workers are often exposed to situation that threatens their lives. Certainly these experiences could impact on their emotional, social, mental and physical health, which in turn will affect the quality of the care they are able to provide to patients (Regehr & Bober, 2005).

Research has shown that working professionals who are affected by traumatic stress are at a higher risk of making poor professional judgements than those who are not affected (Pearlman & Saakvitne, 1995; Williams, 2012). Evidence from previous research shows a strong association between people experiencing traumatic events and their biopsychosocial well-being (Everley & Lating, 1995). A biopsychosocial model of health extends the traditional biomedical model of healthcare to incorporate dimensions of care that are lacking from the latter model (George & Engel, 1980). George and Engel (1980) known as the father of the biopsychosocial model, proposed that the biomedical model limited medical care to biological factors such as pathogens. As a result this biomedical model ignored psychological factors such as caring, self-efficacy and confidence; as well as social factors such as support from family and support within the working environment. This was seen as detrimental to holistic patient care (George & Engel, 1980). Whereas George and Engel (1980) proposed

this model for clinical care, this study adopts the biopsychosocial model as an appropriate model for analysing and categorising the way traumatic stress manifests.

Marmar *et al.* (2015) emphasise the importance of understanding the impact of mass casualties on rescue workers such as paramedics, in order to successfully help them maintain a healthy biopsychosocial state. Naudé and Rothmann (2006) state that their research of emergency personnel, such as fire-fighters, paramedics, police officers and disaster relief workers, clearly shows frontline emergency care helpers to be subjected to levels of stress that contribute to an array of psychological, social and physical reactions. This triggers further stress(Naudé & Rothmann, 2006). Furthermore, research conducted on the impact of exposure to traumatising situations involving various emergency care personnel has revealed that a failure to adequately deal with the trauma creates real threats to the psychological, emotional and physical health of the paramedics (Bergen-Cico *et al.*, 2015). Overwhelmingly the emergency care service environment involves higher than average stress-inducing activities (Minnie *et al.*, 2015). Reactions to stress such as burnout or illness are commonly seen in Emergency Medical Services (EMS) professionals (Mitchell & Bray, 1990). Other examples of the manifestation of stress are psychological, such as feelings of anger, anxiety, feeling overwhelmed; social, such as withdrawing from others, poor communication; and physical, such as unexplained nausea, shortness of breath and anxiety (Mencl *et al.*, 2013; Naudé & Rothmann, 2006).

Professionals such as law enforcement officers, disaster managers, firefighters, paramedics and nurses are at high risk of suffering from post-traumatic stress disorders (PTSD) (Stanley *et al.*, 2016). Several studies have indicated that paramedics exposed to chronic stress may suffer long term negative consequences (Halpern *et al.*, 2009). However, these previous studies had combined populations of paramedics who had received different levels of training. These are Basic Life Support (BLS), Intermediate Life Support (ILS) and Advanced Life support (ALS). Despite these paramedics having different levels of training, they are exposed to the same traumatic incidents in their profession. Therefore, in the light of this gap in research focus on a specific level of paramedics, this study aims to provide a more refined account of the impact that traumatic experiences have on the ILS paramedic's psychosocial health. The rationale for choosing ILS paramedics as the focus for the study is explained below when discussing the different levels of paramedic training.

1.2 Background

1.2.1 The Paramedic profession

Courtney *et al.* (2010a) define paramedics as workers who are first responders at emergencies where they have to make rapid and life-saving decisions. Due to the nature of the work, paramedics should be of sound health, both physically and psychologically (Courtney *et al.*, 2010b). Paramedics are responsible for the provision of pre-hospital emergency care, treatment and specialised transport for patients with medical emergencies. They deal with non-traumatic emergency tasks such as hospital admissions, discharges and transfers. In addition, they usually work as part of a rapid response team dealing with a range of situations, from minor wounds to serious injuries caused by a major accident (Alexander & Klein, 2001b).

These professionals therefore need to be competent enough to make quick decisions about moving patients and how best to assist patients. They must also be strong enough to securely lift and place patients onto stretchers, load the stretchers into ambulances and transport patients to hospital (Alexander & Klein, 2001a). Their work also requires record-keeping of patient care records and other written reports. Paramedics are also required to be on standby at public gatherings, such as large sporting events, such as large sporting events; so that they are on hand should accidents or other health emergencies occur (Clompus & Albarran, 2016). In addition to interacting with people, a paramedic also expected to performing daily vehicle and equipment safety checks, making sure that medical supplies are accounted for and that the equipment and ambulances they use function properly.

1.2.2 Paramedic training

Paramedics are trained to render minor and lifesaving emergency care to sick and injured people in their communities. As mentioned previously the field of South African paramedics has three levels. These are:

- Basic Life Support (BLS)
- Intermediate Life Support (ILS)
- Advanced Life Support (ALS) paramedics.

Individuals at these different levels often work together as a team.

1.2.3 Basic Life Support medic (BLS)

The BLS crew complete an induction course studying preliminary clinical and practical skills as well as undertaking driver awareness assessments. They are then compelled to commence with on-road training for a period of nine months, applying their studies in a practical emergency environment under full-time supervision. The course is offered by training centres accredited by the HPCSA.

1.2.4 Intermediate Life support medic (ILS)

Following the compulsory on-road practicum, BLS paramedics apply to write an entry test into the Ambulance Assistant course (ILS) course. The successful candidates undertake a maximum of twelve months of theory and practical learning before taking an assessment. If found to be competent the ILS paramedics will independently perform lifesaving skills as per their scope of practice. They register with the Health Professionals Council of South Africa (HPCSA) as ILS paramedics.

1.2.5 Advanced Life support medic (ACLS)

Advanced Life Support paramedics are trained to perform highly technical lifesaving interventions (Bledsoe *et al.,* 2005). This qualification is either a twelve month intense Critical Care Assistant (CCA) course or a three year diploma qualification offered at Universities. The new two year Emergency Care Technician (ECT) course was introduced in 2015 and is offered by various accredited training centres.

Although there is a difference in the level of technical training and the skills each group possesses, these paramedics are all exposed to the same traumatic events.

This study focuses on ILS paramedics because they are critical to the emergency care services. The standard emergency care services system in South Africa deploys a BLS and an ILS paramedic in an ambulance and deploys the ALS paramedic in a sedan vehicle. The latter provides advanced medical assistance when required by the ambulance crew. This type of set-up usually puts the ambulance crew directly in the frontline of any potential harm's way. The ILS paramedic, as the senior member of the ambulance crew, may be required to assess the prevailing conditions and make a decision about the approach the ambulance crew should take (Health Professions Council of South Africa, 2018). In the ambulance the management of the patients is the responsibility of the ILS paramedic who, upon assessment, can either

downgrade the management to the BLS level or escalate the management to an ALS level of care.

The researcher acknowledges that the set-up of an emergency service may differ depending on operational needs, however, during the fifteen years the researcher has spent in the emergency care services environment; this has been the standard ambulance crew method of operation. The critical role ILS paramedics play in the emergency services, and the added responsibility of decision-making as explained above, increases the possibility of experiencing trauma as a first line responder. This has influenced the researcher's decision to focus on the ILS curriculum.

1.3 Nature of paramedic work

South African paramedics are regarded as some of the best paramedics in the world (Fjeldheim *et al.*, 2014). This high regard is due to the high quality of training provided, as well as the high exposure to dangerous and traumatic situations (Fjeldheim *et al.*, 2014). Within this context South African paramedics are exceptionally well equipped to render necessary life-saving emergency interventions at road accidents and other trauma scenes. However, their jobs are fraught with danger. They often travel at high speeds, at times using unconventional routes to get to patients as quickly as possible. This places them at risk of being involved in accidents themselves. Furthermore, these traumatic experiences are particularly worrying trend because paramedics have been attacked by criminals. Indeed, research has shown that the nature of work done by paramedics is not only stressful, but also very dangerous (Jonsson & Segesten, 2004).

1.4 The consequences of the traumatic and stressful work carried out by ILS paramedics and ways of coping with the consequences thereof.

Paramedics who work in stressful environments are likely to experience trauma. Their occupational experiences such as deaths of the patients under their care, violence and assault, can cause emotional, psychological, mental and physical challenges for some paramedics (Regehr *et al.*, 2002b). Studies suggest that these experiences put the paramedics at risk of developing stress disorders, depression, anxiety, emotional withdrawal, hypertension and general body pain (Alexander & Klein, 2001a; Minnie *et al.*, 2015; Regehr *et al.*, 2002b). This is further supported by a large scale survey with a responses from 4021 EMS personnel across the United States (U.S) in 2015. This survey was created to gauge the prevalence of

suicide contemplation and suicide attempts as well as the general the state of the mental health and well-being of EMS personnel.
The findings from the survey revealed a far higher prevalence of suicidal thoughts and attempts among EMS personnel who responded to the survey, than similar studies on the general population in the U.S. (Abbott *et al.*, 2014).

Most of the research done in this field has focused on trauma debriefing and self- developed coping mechanisms used by paramedics (Minnie *et al.*, 2015). They further reported that coping mechanisms employed by paramedics based in Cape Town, South Africa, despite the support and debriefing services in Cape Town, were not enough to sustain their biopsychosocial well-being while dealing with continuous exposure to stressful and traumatic working environments (Minnie *et al.*, 2015). The emotional, psychological and physical effects resulting from working as a paramedic helping victims of violence, and experiencing direct violence while carrying out these tasks can be very overwhelming (Seedat *et al.*, 2009). Although there has been some research in this field there is a limited empirical evidence of the effect these exposures to trauma may have on the biopsychosocial health of paramedics (Khashaba *et al.*, 2014). This is supported by Stanley *et al.* (2016)that most studies regarding effects of trauma have focussed on police officers and firefighters and very few on EMS personnel. In their systematic review of sixty three studies, most studies were carried out in the U.S. There were only three studies included from South Africa, and all three only included police officers. There has also been research into secondary trauma and post-traumatic stress disorder (PTSD) (Figley, 1995; Pearlman & Saakvitne, 1995). However, none of the research mentioned above has focused on developing possible competencies that could be incorporated into the curriculum of the paramedics to promote their holistic well-being.

Research in the domain of the competencies needed to be able to cope with and manage these experiences is very limited despite the fact that the Health Professions Council of South Africa (HPCSA) has proposed that all curricula should have well-defined competencies set out. Currently the South African Emergency Care curriculum does not clearly specify the relevant competencies needed to cope with and manage the possible effects of experiencing trauma. The resulting problem is that the curriculum does not clearly state which

competencies should be incorporated in the ILS paramedics' curriculum to enable them to cope with traumatic stress.

Certainly improving the education and training of paramedics will help them to better cope with work-related traumatic stress. As a start the present curriculum for training ILS paramedics needs to clearly outline competencies that could be incorporated in the ILS paramedics' curriculum to enable the paramedics to maintain a healthy psychosocial state and cope with traumatic stress. These competencies could be ensuring that the ILS paramedics has the knowledge on effects of trauma experiences ,how they affect an individual well-being, the skill to complete self-stress diagnostic questioners and the correct attitude to be able to consult when they are unable to cope with the traumatic experiences they are exposed to.

The greater demand for holistically trained ILS paramedics with sound background knowledge of the stressful traumatic working environment justifies the need for more effective competencies to be developed and possibly added to the competence of an ILS paramedic, to deal with the effects of experiencing continuous trauma. Institutions that engage their ILS curriculum critically in preparing ILS paramedics for their future working environments should educate and train their learners to cope better.

1.5 The research problem

It has been clearly stated above that paramedics deal with continuous stress and effects of the trauma they experience, and present services are not adequate to deal with this problem, alternative approaches need to be developed. One such approach is developing clear and appropriate competencies for paramedic curricula. Although it has been proposed by the HPCSA to have well-defined competencies set out, it is not clearly stated in any present curriculum for training ILS paramedics what possible competencies could be incorporated in the ILS paramedics' curriculum to enable them to maintain a healthy psychosocial state and cope with traumatic stress.

As further evidence to pursue this approach, more recently, there has been more disturbing news with reports of paramedics conducting themselves in appalling and unprofessional manner. For instance Maguire *et al.* (2018) reported of a paramedic who was arrested for crashing into a police car whilst drunk on duty. In another report (Wootson, 2018) writes on

a woman who was wrongly declared dead and sent to the morgue by paramedics by mistake. The Department of Health (DOH) in South Africa also stated that it receives serious complains levelled against paramedics regarding patient neglect (Department of Health South Africa, 2019). Everley & Lating, (1995) indicated that trauma and stress can drive someone to behave in a way considered out of character and irresponsible. It is possible that some irresponsible decisions made by the paramedics could be a result of not being able to manage stress. Since the present debriefing and counselling services do not seem to be adequate (Minnie *et al.*, 2015) to prevent these problems, other avenues to help paramedics need to be considered. One such solution is to improve the education and training of paramedics to cope better with work-related traumatic stress.

1.6 Rationale for the study

Intermediate Life Support (ILS) paramedics endure extremely traumatic work conditions. It is therefore imperative that they are adequately equipped with the relevant competencies to ensure optimal biopsychosocial well-being, even in the face of constant stress and trauma. Most studies of paramedics have used quantitative questionnaires and checklists to interrogate coping methods used by various emergency care personnel (Michael *et al.*, 2016). These quantitative methods focus mainly on statistics and percentages rather than gaining an understanding of the phenomenon, which is afforded by qualitative studies (Tavakol & Sandars, 2014)

This qualitative study therefore is an attempt to gain an in-depth understanding of the sources of trauma faced by the study participants and how they have been trained to cope with the trauma. This is very important given the paucity of research on effectiveness of paramedic training in imparting necessary competencies to deal or cope with traumatic work experiences (Stanley *et al.*, 2016). Gathering qualitative data on the types of everyday trauma experienced by ILS paramedics at work and the current coping mechanisms they use is important for two reasons. First, it allows one to evaluate if the training is adequate to impart the necessary competencies required by the paramedics. It also allows one to proffer remedies to short comings as indicated by the paramedics themselves. This study therefore attempts to fill the gap in our understanding of traumatic events experienced by South African paramedics and recommends a training approach which fully equips the paramedics to deal with stress and trauma.

1.7 Aims

1. To give an account of the trauma experienced by ILS paramedics and the effects on their biopsychosocial well-being, and the competencies or coping mechanisms used presently to deal with post-traumatic stress and disorders.
2. Develop the competencies needed by ILS paramedics to deal with post-traumatic stress and disorders that promotes sustainable self–care.

1.8 Objectives

To achieve these aims, the main objectives are:

1. To describe the types of everyday trauma experienced by ILS paramedics through interviews and observation during emergency calls.
2. To describe how the nature of their work has an impact on their biopsychosocial well-being from information gathered from interviews.
3. To describe and critically analyse the coping mechanisms ILS paramedics use to deal with traumatic stress, from the information elicited in interviews.
4. To describe the competencies the ILS paramedics identify from their present curriculum to help them deal with traumatic stress through interviews.
5. To identify and describe the competencies needed to promote sustainable self–care for ILS paramedics' biopsychosocial health using a panel of experts.

1.9 The research question

What are the competencies needed by ILS paramedics to be able to cope with the traumatic stress in their workplace?

1.10 Chapter summary

In this chapter the focus was on the introduction and background to the research problem as well as the research approach. It provides an overview of the research problem, rationale, research aims and objectives as well as the research question. In Chapter 2, the focus is on the literature review related to the nature and extent of the trauma experienced by ILS paramedics and its effect on their psychosocial well-being: coping mechanisms used by paramedics and other emergency care workers; competency based education and the biopsychosocial approach to health as a conceptual

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter deals with a review of the literature on the main topics of the research, which include the types of coping mechanisms used by paramedics to reduce and mitigate the effects of post-traumatic experience so as to improve self-care, and training of paramedics in dealing with the impacts of the trauma they experience.

PubMed data base was used to search for literature using the following search terms such as, “stress in paramedics,”, ”post-traumatic stress syndrome,”, “coping mechanisms in paramedics,”, “attacks on paramedics,”, ILS paramedic’s curriculum,”, “biopsychosocial model,”, “competency based medical education,”, “support for paramedics”. This was followed by a broad search in Elsevier website and Google Scholar to ensure adequate coverage of the topic. All the literature reviewed is related to the training of paramedics, the trauma they are exposed to while working, coping mechanisms used to cope with stress, as well as relevant competencies and competency based education.

2.2 Incidents causing trauma

From the statistics in the table in Chapter 1, the most prevalent incidents that paramedics deal with are road traffic accidents, which include motor vehicle accidents and pedestrian accidents, as well as high incidents of violent crimes, which include murder, sexual offences and assaults.

2.2.1 Motor vehicle accidents

Motor vehicle accidents occur when a vehicle collides with another motor vehicle or other stationary obstructions such as trees, poles and building structure which usually result in severe traumatic injuries and death (WHO, 2014). South Africa accounts for one of the highest motor vehicle accidents fatality rates on the continent. There are almost 10,000 fatal motor vehicle accidents on South African roads annually. This represents about twenty three people being killed for every 100,000 people. In 2018 Gauteng recorded the highest number of motor vehicle accidents (89). In addition to the fatal crashes about 40,000 people suffered severe traumatic injuries.

2.2.2 Pedestrian vehicle accident

When motor vehicles collide with pedestrians, there is a very high potential for serious traumatic injuries. Pedestrian accidents are a very serious problem in Gauteng. The Gauteng province has a particular problem with pedestrian deaths and injuries. The Citizen (2018) revealed preliminary information that in Gauteng about 70 percent of the road fatalities involved pedestrians, especially in municipal areas. Many fatalities that happened in Gauteng were caused by pedestrians walking at night, the majority of who were intoxicated. As reported in the Citizen (2018) within the Gauteng province the majority of fatal pedestrian/motor vehicle collisions occur on Friday, Saturday, and Sunday nights.

2.2.3 Violent crime

A violent crime according to the South African Police service (SAPS) crime statistical report (2018) is a crime in which an offender or perpetrator uses or threatens to use force upon a victim. This includes crimes in which the primary objective is a violent act, such as murder or rape. Violent crimes also include crimes that were not committed mainly with the intention of inflicting harm against another person during the act of the crime, such as burglary and car theft, with the owners in the way and are hurt in the act. The infliction of bodily harm on another person could include the use of dangerous weapons and poisons. In 2015, the Crime Statistics of South Africa reported that violent crime rates in South Africa were one of the highest in the World. According to the SAPS crime statistics of (2017) Gauteng recorded the highest number of violent crime (SAPS, 2018).

2.3 Trauma experienced by Paramedics

Paramedics respond to the worst moments in people's lives. These traumatic events vary in severity from call to call and they are also prey to criminals who attack and rob them. Paramedics work in various challenging environments and are the first to render emergency healthcare to people who are faced with life-threatening crises either at their home, church, road or other public gathering places (Alexander & Klein, 2001b). ILS paramedics are exposed to suffering and tragedy on a daily basis. In addition they are often in situations where their own safety is threatened (Regehr *et al.*, 2002a). The incidence of paramedics being targeted by criminals while attending to patients is on the rise in South Africa. According to the Johannesburg Emergency Management Services (EMS), (Paramedics under

attack, 2016) there is an escalation of paramedics being attacked. This is also occurring in other areas and therefore this problem is not limited to Gauteng.

There is at least one report of an incidence of robbery per month, whereby paramedics are attacked or robbed of medical equipment and their belongings (Regehr *et al.*, 2013).

2.4 Post traumatic Effects

The consequence of stress and traumatic experiences compound over time, which results in paramedics struggling with post-traumatic stress disorder (PSTD) and other behavioural health issues, which cause an overall unhealthy biopsychosocial state (Regehr *et al.*, 2002b). PTSD among emergency care professionals is a very common disorder (Fjeldheim *et al.*, 2014). Studies have indicated that the nature of operational work conducted by emergency service workers is very stressful (Jonsson & Segesten, 2004). In South Africa a study by Minnie *et al.* (2015) confirm that the same problem of highly stressful work, resulting in PTSD amongst paramedics. South African EMS providers are exposed to high numbers of traumatic incidents. They also work long shifts and lack the necessary social support that would promote biopsychosocial well-being. The huge prevalence may be caused by people being exposed to traumatic events, motor vehicle accidents, criminal violence (murders, rape and assaults), suicide cases and illness exacerbated by extreme poverty (Atwoli *et al.*, 2013). According to, Davydov et al., (2010) PTSD is defined as a disorder that develops in people who have experienced a traumatic, shocking, scary or dangerous event or if they suffer from secondary or vicarious trauma, which is often the case with paramedics and other emergency care workers.

Secondary trauma is trauma experienced by a person helping, or wanting to help, a traumatized or suffering person. This can result in emergency service workers suffering from secondary traumatic stress (Figley, 1995). The effects of secondary trauma result in intrusive thoughts, traumatic memories, nightmares, angry outbursts, avoidance and hyper vigilance of the emergency worker (Bride, 2007). The emotional and mental state of emergency service workers may lead in behavioural changes and for paramedics to be effective they need to be mentally, physically and emotionally stable. Any imbalance will cause the paramedics psychosocial health to be affected.

Vicarious traumatization is a change in process resulting from chronic direct practice with traumatised people and populations, in which the outcomes are alterations in ones thoughts

and beliefs about the world in key areas such as safety, trust and control (Lisa McCann & Pearlman, 1990; Pearlman & Saakvitne, 1995).

Secondary traumatic stress, grounded in the field of traumatology, emphasises outward behavioural symptoms rather than intrinsic cognitive changes related to vicarious trauma (Figley, 1995). Secondary trauma like vicarious trauma is a result of direct practice or being exposed to trauma victims. The symptoms resulting from secondary or vicarious trauma are similar to those of PTSD.

Almost everyone will experience a range of symptoms after traumatic experience. These symptoms can be grouped into four types. These are intrusive memories, avoidance, negative changes in thinking and mood, and changes in physical and emotional reactions (see table below). Symptoms can vary over time or vary from person to person (Davydov *et al.*, 2010).

Table 2: Symptoms of post-traumatic stress disorder

Symptoms grouped by the United States National PTSD Centre, (2018) Grouped reaction of PTSD	Symptoms
Intrusive memories	Nightmares and flashbacks
Avoidance	Trying to avoid thinking or talking about the traumatic event Avoiding places, activities or people that remind you of the traumatic event
Negative changes in thinking and mood	Negative thoughts, hopelessness, loss of memory of the event and detachment.
Changes in physical and emotional reaction	Frightened, alcohol abuse, reckless driving, lack of sleep, lack of concentration and angry outbursts.

2.5 The nature of paramedics work and its effects

Most of the paramedics work in the front line of health service during critical incidents. The nature of work of a paramedic exposes them to sick, dying and vulnerable patients or even

significant traumatic events, which puts paramedics at risk of developing PTSD (Halpern *et al.*, 2014).

The work experiences of paramedics can be disturbing, overwhelming and threaten their methods of coping. All paramedics who took part in a study reported by Donnelly (2012) indicated that they were exposed to traumatic events that resulted in further stressful effects and an increase in alcohol use. Donnelly (2012) further argues that it is possible that paramedics under-report symptoms that are related to stress and exposure to trauma, which may lead to high rates of suicide, separation or divorce and depersonalisation. These problems rated very high for paramedics and fire fighters (Chicago tribune, 2016).

Many paramedics expressed the belief that the symptoms associated with the exposure to trauma will simply go away. This results in a lack of concrete reporting figures. There is a belief in an "ironman culture" in the emergency care field, which may also put pressure on paramedics not to seek help (Donnelly, 2012). Another contributing factor may also be that emergency services do not have the necessary psychological health services to look after their biopsychosocial health (Essex & Scott, 2008).

There are other reported contributing factors such as long shifts, unbalanced diets, low salaries and a lack of exercise that increase the severity of the stress in paramedics (Lakhan & Vieira, 2008). If these conditions are not addressed professionally it may lead to paramedics developing their own ways to keep themselves functional. This may be through self-destructive behaviour, which in turn will decrease their resilience in maintaining a healthy well-being. Essentially the coping mechanisms they have devised may be ineffective for maintaining their biopsychosocial wellness.

2.6 Self-care

Self-care broadly indicates strategies that professionals treating patients in traumatic environments will use to enhance their well-being and to mitigate the negative impact of their experience (Wilkinson & Whitehead, 2009). Self-care could also enhance their awareness and encourage introspection of the professional's psychosocial well-being (Wasco & Campbell, 2002).

To perform at optimal levels, professionals will have to develop their own personal coping mechanisms to reduce or prevent the negative impact of traumatic experiences in their lives.

Individual self-care encompasses the personal physical, psychosocial health of the professional and the professional well-being of the paramedics (Giardino *et al.*, 2003). Investing in self-care may seem very demanding and time-consuming for paramedics due to their long working hours, but it is imperative in order to be an effective and responsive paramedic.

Self-care can be understood in many different ways. Self-care is not "other-care" (Delany *et al.*, 2015; Richards *et al.*, 2010). While self-care may clearly refer to care, this is care that is initiated and maintained by us as individuals. It demands that one needs to be actively engaged in the process. For this study the term 'self-care' refers to physical, emotional, intellectual and spiritual care. Regardless of how the dimensions of the term are broken down, all the aspects are interconnected. The inability to maintain self-care in one dimension could lead to consequences in another. Self-care takes into account a biopsychosocial dimension.

2.7 Biopsychosocial dimension

The biopsychosocial model of health may be called a plural perspective of health or a broad approach to health (Lakhan, 2006). According to the model, health is the result of mutually interdependent physiological and socio-economic components that co-exist in a state of equilibrium. The biopsychosocial model of health and illness was first articulated by Engel (1977) based on what he saw as the limitations of the biomedical model to deal with the psychological and social causes of ill--health.

2.7.1 Diet and physical exercise

A good diet and physical exercises are essential to the well-being of a paramedic.

According to Bledsoe *et al.* (2005) exercising has far reaching benefits. Reaching acceptable physical fitness standards may lead to a decreased blood pressure and heart rate, increased muscle mass and increased oxygen-carrying capabilities. These factors may increase the body's resistance to illness and injuries.

According to Blair *et al.* (2001), it is much more beneficial when physical exercise and a good diet are combined to achieve good results. A good diet may help to reduce the chances of certain illness. Paramedics should ensure that they monitor their fluid intake and always adhere to a healthy diet

2.7.2 Sleep

The work routine of an operational ILS paramedic will always be on a shift basis. Medical emergency care services are essential services required to be accessible 24 hours and 7 day a week. Shift work is by its very nature stressful because it disturbs the physiological phenomena that occur in a 24 hour cycle and also deprives the paramedics of much-needed sleep (Courtney *et al.*, 2013). These disturbances may include hormonal and body temperature fluctuations, as well as eating and sleeping cycles. When these patterns are disrupted the biological effects can be very stressful. A good example of this is sleep deprivation, which is common in operational paramedics as they are required to work shifts (Bledsoe *et al.*, 2005).

Promoting psychological well-being from the emotional perspective:

2.7.3 Emotional interpersonal dimension

Coping mechanisms in this dimension include emotional expression and nurturing, emotional guidance and heightened self-care awareness.

2.7.4 Nurturing expression

An important quality that paramedics can develop is the ability to nurture them. This ability is fundamental to self-care. According to Hunter and Schofield (2006) nurturing activities include meditation, attending yoga sessions, going for walks, listening to music, reading and enjoying time alone. Rippstein-Leuenberger *et al.* (2017) highlight that nurturing the self is an imperative element for trauma healthcare workers success.

Nurturing the social and creative self through sports, interest and recreational activities allow the paramedic the opportunity to renew energy levels and promote a healthier self-care outlook.

2.7.5 Emotional expression

For paramedics it would be more beneficial to avoid the suppression of their emotional responses. Emergency care workers need to pay attention to their emotions and learn to listen to them. Emergency care workers should allow for appropriate emotional responses and expressions. Emotional response modulation allows for more adaptive responses as the professionals learn how to self-regulate. With the development of self-regulation mechanisms; stimuli levels can be drastically lowered and mitigated. In this way emotional

responses to traumatic experiences can be minimised as emergency care workers learn appropriate containment.

2.7.6 Self-care awareness

Regardless of how beneficial the emergency care workers coping mechanisms may be, or conversely, how traumatic the experience they are exposed to is, there will be a period when certain aspects of an experience penetrates through their coping mechanisms, which would place professionals at risk of suffering from post-traumatic effects. Minnie *et al.* (2015) suggest that there are several simple things emergency care workers could be made aware of to do to improve their resilience to post traumatic effects. This is true for all emergency care workers and is especially true for paramedics who have limited time to invest in self-care.

When considering coping mechanisms, it important to bear in mind that they may be constructive or destructive (Mildenhall, 2012). Minnie *et al.* (2015) also report that the coping mechanisms of emergency medical personnel (EMS) were not adequate for long term coping within this stressful and traumatic environment.

2.8 Coping mechanisms

Coping mechanisms, as defined in the Mosby Medical dictionary, are any characteristics or behaviour patterns that enhance a person's adaption (O'Toole, 2017). Coping skills include a stable religious belief system, problem solving, social skills, health energy and commitment to a social network.

The clinician Pestonjee (1992) reported that there are two strategies used by people to cope with stress. The first strategy is referred to as passive strategy, where the affected person chooses to suffer or deny the post-traumatic stress. In the second strategy, referred to as active strategy, the affected person may seek assistance for the disorder in an attempt to maintain a healthy well-being.

In terms of human behavioural ecology, aspects of a person's work life impacts on other areas of that person's life. Therefore coping occurs in all dimensions of a human being's life, namely cognitive, emotional, behavioural, soul, physical and spiritual. Minnie *et al.* (2015) reported that not all coping mechanisms are helpful and this can lead to people developing coping mechanisms which are harmful for them.

According to Camelia and Ioana (2015) coping mechanisms are largely thoughts and behavioural patterns that people engage in when they are trying to deal with emotional disorders such as stress. We all have defence mechanisms (denial, repression, projection, sublimation and so on) that we use and through those, we often develop different ways to cope. Some people may avoid thinking about what is stressing them while others may suppress their emotions. Some people develop unhealthy beliefs about whatever their source of stress is while others people avoid the source of stress. We all do this at some point and the circumstances influence how we may choose to cope at any given time.

There are factors that may affect and have an influence on the paramedics' preference in choosing and responding to different self-care strategies . Paramedics will need to identify which particular self-care and coping mechanisms they find to be effective for themselves and individualise their self-care routines accordingly.

2.8.1 Resilience

Resilience is defined as the ability to bounce back from adversity (Holmes *et al.*, 2017). This is a skill for coping with life's adversity such as those suffered by paramedics after a traumatic event. Trauma-related studies in the past had attempted understand the reasons why individuals are different in their vulnerability to developing symptoms following exposure to traumatic events. In South Africa Minnie *et al.* (2015), found that with paramedics the following aspects contribute to poor resilience: poor marriage, a presence of psychopathology in the family history, passive rather than active coping and post-traumatic development. A study by Pole *et al.* (2006) reported that resilience was sized up by minimum distancing coping and minimum tendencies to keep their lives a secret from relatives and friends.
The finding showed that holding work-related issues and stressors a secret from those close to you in the hope that you will overcome them, as many paramedics do, may exacerbate social isolation and undermine any coping mechanisms.

2.8.2 Types of coping mechanisms

There are several diverse ways of coping with stress. Positive coping mechanisms include seeking help from supportive people, such as a counsellor or friend. Other positive ways to cope include meditation, journaling and exercising (Roche *et al.*, 2015).

A negative way to try to cope is to attack the other person, making them feel uncomfortable. Another alternative is to avoid the person, place or thing that causes us stress. Some choose to become defensive or even find ways to harm themselves. Furthermore, there are people who remain in denial after a stressful situation. For instance, to avoid the feelings of grief when a loved one dies, it is easy to stay in denial. But refusing to admit what is true can be harmful if it continues for a lengthy period (Galor *et al.*, 2012). Also among the unhealthy coping mechanisms is active aggression, passive aggression, suppression and going to the extremes with your emotions. These may appear in the form of outbursts or fits of rage. None of these are beneficial to the well-being of a person.

Regardless of the ranges of strategies and different categorizations, two main categorizations are mentioned almost universally: problem-focused and emotion-focused coping (Elfering *et al.*, 2005). Problem-focused coping refers to attempts to remedy a stressful situation (e.g., seeking information, planning, taking action), while emotion-focused coping refers to efforts to regulate the emotional distress associated with the situation (e.g., distraction, positive reappraisal or seeking emotional support).

According to LeBlanc *et al.* (2011), the coping methods of the paramedics are usually informal and built on positive peer support. Effective communication and trauma debriefing were also found to be useful coping methods (Lowery & Stokes, 2005).
The use of humour as a coping strategy seems embedded within the culture of many paramedics as a way to manage encountering a stressful scene. This is apparently a light-hearted means of debriefing (Christopher, 2015). Alcohol consumption and smoking are common destructive coping mechanisms used by paramedics (LeBlanc *et al.*, 2011).

A study by Essex and Scott (2008) found exercising to be a healthier and more effective coping method, but the researcher from his operational experiences found that current emergency services stations lack the gym equipment needed. This finding is supported by Minnie *et al.* (2015) who found coping methods by paramedics and support systems put in place to be inadequate. In addition, the tedious hours paramedics are required to work make this coping strategy very difficult to implement practically. The paramedics may resort to destructive coping mechanisms instead, which may impact negatively on their biopsychosocial health. Identifying constructive and destructive coping mechanisms will

form the basis for strengthening the positive ones and finding ways of countering the negative ones (Kirby *et al.*, 2011). Perhaps the ideal starting point would be to develop competencies to achieve curricula outcomes that will help to promote sustainable biopsychosocial well-being in the training of the paramedics.

Since one of the aims of this study is to explore the coping mechanisms used by ILS paramedics use to cope with post-traumatic stress. The study focused on both positive and negative coping mechanisms that are used to intervene in managing and mitigating post traumatic disorders among ILS paramedics.

2.8.3 Gaps in training

The South African 'health and wellness' chapter of the module in the ILS paramedic curriculum is a fundamental building block of top-notch performance in emergency care training. It includes the physical wellness as well as the paramedic's mental and emotional well-being (Bledsoe *et al.*, 2005). The 'health and wellness' chapter discusses several elements of the biopsychosocial well-being for paramedics. The chapter covers topics such as fitness, nutrition and physical preparation for paramedics. There are tips on exercising, eating a balanced diet and dealing with stress. The graduate outcomes for the 'health and wellness' chapter are not clearly defined and are copied directly from Western literature. No competencies to achieve the outcomes have been identified in the present module for ILS paramedics in a South African context.

One process, however, that has been neglected in the 'health and wellness' chapter is the effect that trauma experienced by ILS paramedics will have on their biopsychosocial health and what competencies are needed to maintain healthy physical, psychological and social well–being. A paramedic's working environment is that of compounding stressful events (Mitchell & Bray, 1990). It is true that a number of significant studies that have been done on paramedics' traumatic experiences have shown how these experiences impact negatively on their biopsychosocial health and well-being (Regehr & Bober, 2005). These studies have also shown how debriefing, counselling and informal coping mechanisms are not enough to help alleviate the problems that develop.

However, the question of how these ILS paramedics were trained has rarely been considered. Equally overlooked has been an assessment of the competencies in the training to determine

if the ILS paramedic could deal with any future trauma they may experience while working in emergency situations. Consequently we have little basis, other than the paramedic trainers' own experience, of what works, on which to develop competencies for the teaching and learning of the current ILS curriculum's 'health and wellness' chapter. The process of developing competencies is of course difficult yet very critical. In addition, much of the research is dated and further updated empirical research in South Africa is necessary.

2.8.4 Competency based education

There are many definitions of the concept of a curriculum and according to Ebert *et al.* (2011), curriculum refers to "the means and materials which students will interact with for the purpose of achieving identified educational outcomes" (Bose-O'Reilly *et al.*, 2017). There are also a number of approaches or strategies to developing a curriculum and structuring a course. Toohey (1999) suggests four different approaches that are used to structure courses such as "the logic of the subject matter", "project inquiry or problem-based structure", "cognitive structure based on key overarching concepts, themes or intellectual abilities" and "performance, role-and competency based structure". The course structure is largely based on the-values, beliefs and ideology influencing the curriculum.

This study will focus on competency-based education (CBE). In recent years with the re-emergence of CBE, which is a form of outcomes-based education (OBE), the HPCSA has encouraged all health profession educational institutions to adopt a CBE approach to developing their curricula.

The HPCSA has used a framework for undergraduate medical education based on 2005 Can MEDS Physician Competency framework, with the permission of the Royal College of Physicians and Surgeons of Canada. The HPCSA has begun to apply this framework to a new paramedics programme known as BLS and ILS paramedics. The HPCSA divides the competencies into a "Key Competency" that is similar to a graduate outcome. For each "Key Competency" there are a number of "Enabling Competencies" that will assist students in achieving each "Key Competency" by the time they graduate.

Frank *et al.* (2010), after conducting an extensive systemic review of CBE and related concepts, defined CBE as an approach that prepares healthcare service learners for practice.

A set of graduate outcome abilities (knowledge, skills and attitudes, which include values and beliefs) are developed based on competencies derived from an assessment of society and patient needs (Frank *et al.*, 2010). According to Khan *et al.* (2010), curricula can be divided into approaches, namely outcomes-based and prescriptive. In the outcomes-based curriculum competencies to be achieved in the three learning domains are explicitly stated and defined for the learners (Khan *et al.*, 2010). The CBE framework as a form of OBE, when compared to prescriptive models, encourages that less emphasis be placed on the time-based learning, thus striving for learner-centeredness in teaching that is more accountable and flexible. A CBE framework has not been applied to many South African training programmes because of the political history of the country. OBE was only applied after 1994. More recently, however, the increase in public health service accountability, concerns over the quality of health professional education and government's pledge to improve healthcare services in the context of a global healthcare system, has put pressure on the Department of Higher Education and Training to apply a CBE framework to health education..

The South African government, through its Educational Training Development (ETD) sectors, has put regulations in place that place great emphasis on a competency framework in all disciplines of education and training. The government oversight body has highlighted the absence of clearly stated competencies in integrated learning. The South African competency framework guidelines put great emphasis on the learning material needing to be developed for a South African context yet are also able to meet international standards.

To determine what the array of abilities are needed to constitute the ILS paramedic curriculum should be, it will have to be decided what kind of paramedic the society wants the curriculum to graduate. We need to ask what will constitute a holistically educated and prepared paramedic in our society. In other words, what purpose does the curriculum serve? Does teaching 'health and wellness' to paramedics really lead to the ILS paramedic being properly equipped with the abilities to face and cope with any trauma they may face in the field? Conversely, does it merely provide students with some basic life skills that may or may not be useful in the paramedic's career?

Some may argue that the curriculum does not need to be able to answer these questions, but rest assured that at a point society will ask the training institutions questions like these. The curriculum heads and teachers will be the representatives of "the curriculum" to whom society will turn to for answers. One purpose of the curriculum is to prepare the paramedic

students to thrive and maintain stable biopsychosocial health for themselves within the service they provide to society. This one 'key competency' is paramount and beneficial to paramedics, regardless of the types of trauma the profession may expose them to (Bilbao *et al.*, 2008).

It is suggested by Khan *et al.* (2010), when developing outcomes for a dental curriculum in Pakistan, that graduate outcomes are not generic as there are cultural, societal and institutional variations that affect the required national final competencies (Khan *et al.*, 2010). It is important for South Africa to design its own competencies for a programme such as the ILS paramedic curriculum, rather than simply importing them unchanged from the West.

This study does not aim at focusing on the ILS paramedic curriculum in its entirety, but focuses on the competencies needed for the ILS paramedic to be competent to cope with traumatic stress and be able to promote their own biopsychosocial health.

2.8.5 Assumption of the study

For the second stage of this research, the assumption of this study is that a critical analysis of an account of the traumatic events experienced by ILS paramedics and the effects of it on their biopsychosocial health is necessary. The detailed description of the traumatic events that are experienced by the ILS paramedics and the current coping methods they use to cope will assist in developing possible competencies for the ILS paramedics' curriculum. These two aspects could promote sustainable self-care to prevent PTSD as well as help paramedics deal with the effects of post-traumatic disorders using constructive coping mechanisms.

Government sectors have put an emphasis on competency-based instructional materials. Describing and categorizing competencies for teaching, learning and assessment is a necessary first step in developing a curriculum. The purpose of this study is to develop competencies for the ILS paramedics' 'health and wellness' chapter.

Frank *et al.* (2010b: 642) suggest six steps for planning a Competency Based Medical Education (CBME):

1. Identify the abilities needed by ILS graduates.

2. Explicitly define the required competencies and their components.
3. Define milestones along a development path for the competencies.
4. Select educational activities, experiences and instructional methods.
5. Select assessment tools to measure progress along the milestones.
6. Design an outcomes evaluation of the programme.

This study will be guided by Steps One and Two for Stage Two of the research. The objective here will be to identify the competencies needed to ensure the paramedics attain and maintain optimal biopsychosocial health through sustainable self-care that helps them deal with traumatic stress constructively. In addition these competencies need to be presented as abilities that will form an integral part of the paramedic's professional career. When these competencies for promotion of biopsychosocial health of ILS paramedics are developed, the curriculum can be designed around them. The curricular outcomes will not be time-based with a focus on acquiring subject matter, skills and attitude separated from each other. Instead they will become a framework in which all objectives from the fundamental stage of ILS paramedics training and learning lead to the acquisition of the final competencies for promoting biopsychosocial health.

2.9 Conceptual Framework

This study argues that there is a need to document the traumatic events ILS paramedics experience in the Gauteng Province of South African experience and the coping mechanisms that they use to deal with the resulting traumatic stress. The assumption is that this information could be critically analysed when developing competencies to help them deal with the traumatic stress they experience. Another assumption, based on previous studies, is that the effects of the trauma they experience will affect their biopsychosocial well-being and manifest as physical, psychological or social symptoms of distress (Regehr & Bober, 2005).

As mentioned in the introduction, although Engel (1977) proposed this model for clinical care, in this study the biopsychosocial model has been adopted as an appropriate framework for analysing the effects of traumatic stress on ILS paramedics in the Gauteng Province. This will lay the basis for developing the competencies needed to promote and maintain a healthy biopsychosocial state. The biopsychosocial model of health may be called a plural perspective of health or a broad approach to health (Lakhan, 2006). According to the model,

health is the result of mutually interdependent physiological and socio-economic components that coexist in a state of equilibrium. The biopsychosocial model of health and illness was first articulated by Engel (1977) in a seminal article, based on what he saw as the limitations of the biomedical model to deal with the psychological and social causes of ill-health.

2.10 Underlying philosophy of the model

According to the World Health Organization (WHO) (2015), health is the order of life. Improving health and preserving that state of health is interdependent on components of physiology, psychological, social, economic and environmental systems. The ILS paramedic curriculum will need defined competencies to ensure that learners are competent and ready to deal with the trauma of their future working environment.

Unlike the traditional training of the ILS paramedics where coping with traumatic work stress is the sole responsibility of the paramedic, in the biopsychosocial health model both coping with stress and maintaining biopsychosocial health would be the collective responsibility of several professional groups, such as community services, emergency care agencies, work stations, as well as families and the curricula of training institutions.

2.11 Chapter summary

Similar studies in this phenomenon where mostly quantitative survey. In this chapter the literature review on traumatic events, the effects of these traumatic experiences, the coping mechanism used by the paramedics and the gap in ILS paramedic curriculum were discussed and described, with emphasis placed on the type of traumatic events experienced by ILS paramedics, competency based education, the conceptual framework, the gap in literature and the different types of coping mechanisms they may use for self-care.

A critique of the literature, as already mentioned earlier is that, methodologically, similar studies of this phenomenon, were mostly quantitative surveys focussing on numbers and statistics. Most research on this phenomenon has been conducted in well-resourced countries of the North and the majority on other frontline emergency workers, with less research on paramedics. Evidence from the literature shows that the trauma experienced, the effects of the trauma and the coping mechanisms used are very similar for all frontline emergency workers.

The evidence in the literature regarding clear competencies needed for preventing PTSD, and for dealing with the effects of PTSD for biopsychosocial well-being is lacking in most curricula for emergency workers.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The main aim of this study is to describe the types of trauma ILS paramedics are exposed to, the effects of trauma stress on them and the coping mechanisms and competencies they presently use. This qualitative research will form the basis for an expert panel to develop competencies needed for ILS paramedics to deal with post-traumatic stress.

This chapter covers the research design and methodology employed in the study. It describe the geographical area where the study was conducted, the sampling strategy, the study population, data collection instrument and analysis methods. It also describes measures that were employed to ensure the trustworthiness of the findings.

3.2 Research design

For this study a qualitative research approach was chosen. Denzin and Lincoln (2005) described qualitative research as involving "an interpretive naturalistic approach to the world". This means that qualitative researchers study things in their natural settings, attempting to make sense of or to interpret phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 2005).

Qualitative research methodology was developed in the social sciences to enable researchers to study social and cultural phenomena, observe feelings, thoughts, behaviours and the belief of the mass society. Qualitative data sources include observation and participation, observation (fieldwork), interviews and questionnaires, documents and texts, and the researcher's impressions and reactions (DeFranzo, 2011). A qualitative approach is the most appropriate to be used for interpretive, descriptive and exploratory studies and to explain things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them (Denzin & Lincoln, 2005). In this instance, the qualitative approach is being used to access an understanding of the everyday trauma experienced by ILS paramedics, its effects on their well-being and their coping mechanisms.

Examples of qualitative research are action research, case study research and grounded theory. A qualitative case study approach was deemed the most relevant for the aims of this research and for the research questions. Qualitative case study research, because of its

descriptive orientation of a phenomenon within its authentic context, using different sources of data, is best suited to this study (Baxter & Jack, 2008).

The unit of analysis of the study is the types of trauma experienced while performing their duties, what they currently do to cope with traumatic stress and what competencies are needed to attain and maintain sustainable self-care for optimal biopsychosocial health.

Case study research can be based on single or multiple case studies, which can be exploratory, descriptive or explanatory (Yin, 2011). This case study can best be described as a single descriptive case study with embedded subjects, which gives "a complete description of a phenomenon within its context and covers the scope and depth of the case" (Yin, 2011). Operational (as opposed to office based) ILS paramedics, and an expert panel consisting of a psychologist, and education and training experts are the embedded subjects who allowed the researcher to explore the topic being studied (Baxter & Jack, 2008). The researcher used various methods for data collection such as in-depth semi-structured interviews, observation and a focus group discussion to explore the research question of the study. The methods and instruments used are discussed below under data collection.

3.3 Research Setting

The interviews were conducted at medical emergency care ambulance bases around the Gauteng Province in South Africa. The Gauteng province has approximately 220 emergency ambulance bases. The Gauteng ambulance emergency services cater for the health needs of people who suffer emergency medical conditions. The casualties are from all race groupings and are from different social classes. The ambulance emergency services are by law not allowed to discriminate against anyone regardless of race, sexual orientation and social class. The Gauteng ambulance services encompass both government and private ambulance services. These services serve residents from rural and urban areas. The types of emergencies paramedics attend to are referred to in Chapter 1.

3.4 Data collection

The study was conducted two phases, phase one and phase two. Phase One involved in-depth interviews with ILS paramedics. This was done to gain insight into their experiences with traumatic exposure in their work and how these experiences affects them, their coping

mechanisms and facts about the core competencies taught during their training regarding traumatic experiences.

Phase two involved conducting a focus group discussion (FDG). A panel of expert was convened and presented with the report from the in-depth interviews, which they were asked to critically analyse to develop possible competencies for copying with stress and trauma that may be included in the South African paramedics training for discussion in the FDG. These two phases will be discussed separately for clarity.

The procedure for these two phases will be described separately below.

3.4.1 Phase One

3.4.1.1 Study population

The study population included all participants who met the criteria for inclusion in the study (Burns & Grove, 2010). In this case, the population comprised ILS paramedics who are operational (emergency response ambulance) in the Gauteng Province. Pertinently they needed to be registered with the South African Health Council and be relevant to the research topic (Leedy & Ormrod, 2013).

3.4.1.2 Sampling strategy

Eleven local ambulance emergency care bases were selected from specifically chosen municipalities in Gauteng, namely, Tshwane, Ekurhuleni, East Rand, West Rand and Vaal as these metros represented both rural and urban settings with varying social inequalities. The selection of bases was based on, the bases that granted permission for the study to be conducted on the bases. These five metros constitute the Gauteng province, and the selection of these metros ensured that the study had representation from the entire province in gathering data.

Purposive sampling, also known as judgemental sampling, a non-probability type sampling technique, often used in qualitative research, (Babbie & Mouton, 2001; Etikan, 2016) was used to select ILS paramedics from the abovementioned bases. The researcher recruits participants who have the experience and knowledge to give information-rich data on the phenomenon being studied, especially where a small sample is being used. The emphasis of purposive sampling is on saturation of data collected, rather than generalisation of findings (Etikan, 2016). Twelve ILS paramedics were purposively selected for in-depth interviews,

using the inclusion criteria but also a mix of race, age, length at work, gender (appendix4) this was not to draw comparison but have a variety of participants for the study. The study also ensured equal representation of emergency care bases for the study, private and government emergency care bases were equally represented. The twelve individual participants who were selected met the inclusion criteria namely: they are registered ILS paramedics who work operational shifts and are able to converse in English. Saturation was reached after the eleventh interview and thus there was no need to conduct the twelfth interview. If saturation had not been reached at that point, the twelfth, interview would have been conducted and if necessary, more participants would have been selected according to the inclusion criteria. The 11 who were interviewed consisted of 5 females and 6 males, of which 5 were black and 6 white between the ages of 24-40 years (median 27 years old) and had worked as ILS paramedics for between 4-18 years (mean 8.5 years) (see Appendix 4 for details)

3.4.1.3 Data collection instrument

- **Semi-structured interview schedule**

A semi-structured in-depth interview method was employed as well as the participant observation method. This was done using non-controlled observation, in order for the researcher to experience and share in the experience of the emergency care environment and understand how traumatic experiences affect ILS paramedics (Kumar, 2019). The interviews enabled the researcher to gauge the sources of trauma experienced by ILS paramedics and to understand how they cope with post-traumatic stress. Furthermore the interviews enabled the researcher to gauge how the training they received prepared them for working in traumatic environments.

The interview guide was semi-structured with open-ended questions and probes to assist if needed. The method is more structured as compared to the informal conversational interview although it still afforded some flexibility in how it is composed (Borg & Damien Gall, 1964).
A semi-structured interview guide was compiled as a data collection instrument for the in-depth interviews with the ILS paramedics. The guide approach is intended to ensure that the same general areas of information are collected from each interviewee: this provides more focus than the conversational approach, but still allows a degree of freedom and adaptability in getting the information from the interviewee (Sparrius, 1992).

- **Personal observation**

The participant observation method was used to note the type of trauma experienced by ILS paramedics and how these may affect their well-being. The researcher mixed with the ambulance crew and assisted with minor tasks. The researcher performed his activities in a manner that helped him to observe the phenomena and the actual behaviour of ILS paramedics while they managed traumatic scenes. The data collected from the observations were used for triangulation within the study of the phenomena where appropriate.

3.4.1.4 Pilot study

A pilot study refers to a trial administration of a research instrument. This is done for several reasons, which include identifying flaws to help the researcher get used to the data collection instrument and to have an idea on how long it will take to administer the research instrument (Holloway & Wheeler, 2002).

This also gave the researcher a clearer understanding of the phenomenon being researched, allowing the researcher to fine tune the questions to be presented to participants.

The pilot study was conducted with the help of one ILS paramedic who met the pre-set selection criteria. The interview that informed the pilot study was conducted at the participant's workplace and completed at their home a day later. The delay was necessary as the participant had to respond to an accident during the interview. The interview was audio-recorded and given to a peer reviewer, who evaluated the appropriateness of the language used and how the questions were framed. The peer reviewer gave their comments and recommendations, which were incorporated in the study. On the advice of the peer reviewer, one question on the interview guide was re–constructed to be more appropriate before further data was collected for the study.

3.4.1.5 Data collection procedure

Data was collected from the in-depth interviews to ascertain the traumatic events experienced by ILS paramedics while rendering their services in Gauteng. In addition to the interview guide, further questions were framed in response to the interviewees' answers. An unintended problem with this type of interview style is a lack of consistency in the way that the interview guide questions are asked. The reason for this is that the researcher may alternate the sequence in which she or he poses the question because of a particular response from the participants.

However, the interviewer was mindful that the participants may not have consistently answered all the question(s) based on their individual experiences. Therefore the researcher had to listen carefully and note which questions had been responded to, so as to cover all questions.

During the data collection process the researcher was able to interact with ILS paramedic participants in a relaxed and informal environment and manner, which afforded the researcher the opportunity to learn more about the in-depth experiences of the participants. This would not have been the case if structured interviews were done. In addition, this informal environment allowed the researcher the opportunity to develop a better rapport with the participants so as to gain their trust. To this end the participants communicated freely, which enhanced the data collected. The researcher found this very beneficial in his interviews because this informal interaction allowed for further questions to be asked where clarification was needed.

The strength of the semi-structured interview guide approach depends on the ability of the researcher to ensure that the same aspect of the data to be collected from each of the participants is achieved. The researcher was also mindful that flexibility was very important, based on the responses from the participants. During one interview a participant was called out to a shooting event and the interview had to be paused and re-scheduled for another time in the same day. This flexibility allowed the participant to fulfil the operational duties and also allowed the researcher to gain an insight into the unpredictable nature of the emergency care profession.

To ensure that the objectives of this phase of the study were met, the researcher spent a one day on every base where the interviews were to be conducted. This observatory period allowed the researcher to enrich his perceptions of the current reality within the ILS paramedic's professional practice. This also ensured that the critical issues were addressed in the semi-structured interview guide. The researcher spent a whole working day on each ambulance base so that the researcher could gauge if the data being collected by the interview schedule produced information that is appropriate for the level of precision required in the analysis of the full range of phenomenon of interest. The engagement with the participants in their natural working environment also allowed the researcher to gauge as to what degree the collection techniques were likely to generate the appropriate level of detail needed for addressing the research question (Smith & Burkle Jr, 2018).

After that, the researcher then conducted in-depth interviews with a selected ILS paramedic on that particular base. This stage provided in-depth insight into the nature of work the ILS paramedics perform in Gauteng. It also provided information on the types of trauma the ILS paramedics experience within the emergency care environment and how these experiences

affects their lives. Secondly this stage also provided information on the coping mechanisms they use to promote self-care and also the competencies they were taught during training in order to prepare them for these traumatic experiences. By collecting this data regarding the trauma experiences lived by the ILS paramedics and the coping mechanism used in the emergency care environment by the paramedics the researcher was closer to the phenomenon he was studying which also enriched his understanding of post-traumatic stress.

3.4.1.6 Data Analysis

The in-depth interviews with the ILS paramedics were tape-recorded and transcribed. The data was analysed manually. The data was analysed systemically using the qualitative thematic analysis method. Thematic analysis is a common procedure to guide the analysis of data in qualitative research. (Bryman, 2008). Although there are differences in approaches to qualitative data analysis, the aim and procedures are similar. The aim is to initially organise the data for analysis and the process of analysis is to code the data and reduce the codes through categorising into main themes (Creswell, 2007).

Thematic analysis was used to analyse data from different data sets collected through the in-depth interviews and the field notes. Data was gathered and analysed from eleven (11) operational ILS paramedics.

Thematic analysis is the process of identifying patterns or themes within qualitative data. (Rosenthal & Wilson, 2016).Thematic analysis is the most widely used qualitative approach to analysing interviews in general. The study used the conceptual framework of the thematic analysis for the in-depth interviews and was mainly built upon the theoretical position of Braun and Clarke (2006). According to Braun and Clarke (2006: 79) “thematic analysis is a method used for ‘identifying, analysing, and reporting patterns (themes) within the data”.

3.4.1.6.1 Thematic analysis process

In this study thematic analysis is regarded as the “realist method, which reports experiences, meaning and reality of participants….” (Braun & Clarke, 2006: 81). To this end thematic analysis was used to report meanings perceived by the participants, with regard to the sources of traumatic events they experience and how they manage the possible post traumatic stresses.

Data was labelled according to the sequence of data collection per participant from participant one (P1) to participant eleven (P11) as a method of identification. Although twelve participants had initially been recruited to represent the bases equally, the researcher found that saturation of data had been reached when interviewing P11.

3.4.1.6.2 Stages of thematic analysis

According to Braun and Clarke (2006: 87) thematic analysis is distinguished by six stages. These are familiarisation with data; focus of the analysis and developing initial codes; categorising the information; identification of patterns; labelling the themes/sub-themes and constructing a report. These stages were used to analyse all the data.

i. Stage one: familiarising with data

The audio tapes were listened to several times before and while transcribing the interviews. The transcripts from the interviews were read so that the researcher could familiarise himself with the text, noting major themes, unusual issues and events that stood out. During this stage there was no marking or highlighting of any text. This was to assist the researcher to become familiar with the data.

As the interviews were transcribed it was possible for meanings and patterns to be identified from the data before the actual analysis started. The researcher also spent one working day at each emergency services base where data was collected and the transcriptions of all data increased the initial established analytical opinions of the researcher (Braun & Clarke, 2006). Anecdotal information (dross) were removed from the data by removing material that was not influential to the data such as “so, so “, “you know mos” as these were not adding value or reducing value to the data (Bernard *et al.*, 2016). To ensure anonymity of participants, their names were removed from transcripts and as mentioned, before labelled from P1-P11.

According to Braun and Clarke (2006) reading the data time and again is the foundation of the entire analysis. After the data was analysed the researcher read and re-read the data to increase familiarisation with data. The researcher further listened to the audio recording two more times to compare the information that was written on the transcripts with the one stored on the audio tapes, following which the content synchronised. This process was time consuming and very taxing, but according to Patton (2002) it is imperative to immerse yourself into the data to be able to recognise patterns within the data. This was very

meaningful as it allowed the researcher to identify recurring words in the data, frequencies of repetitions of certain words and phrases were highlighted with different colours for facilitation of coding described in Stage Two.

ii. Stage Two: Development of codes

According to Braun and Clarke (2006), this stage includes the creation of preliminary codes from the data. The coding process is the most basic segment or element of the unprocessed data or information that can be evaluated in a constructive method in relation to the phenomenon (Richards & Morse, 2007). The text was read again and this time the text was marked using a colour coded system, which was used to highlight specific codes to inform a preliminary analysis. All words and phrases that were frequently used by the participants during the in-depth interviews were noted and listed. This allowed the researcher to identify any underlying meaning in the language used by the participants as well as any commonalities. The researcher was on alert for any unexpected stories that would potentially add great value to the research. Words and phrases used repetitively as well as ideas expressed by the participants were arranged into different codes and analysed.

This process was helpful as similar patterns and or differences from the transcripts were easily identified.

iii. Stage three: Searching for themes

This stage involves creating codes, sorting them into main themes and then into sub- themes (Braun & Clarke, 2006). During this stage the researcher systematically marked the text, indicating parts of the text related to the codes developed in Stage Two. The codes were reviewed to eliminate repetition of similar codes by combining some. At this early stage there were some codes that required refining and some were reduced by categorising them into major themes and sub-themes. This refining and reducing of codes was an iterative process and only occurred at a later stage.

Stage four: Reviewing of themes

This stage included reviewing the created themes against the data set (re-reading transcripts) (Braun & Clarke, 2006). This was very beneficial as it ensured that main themes emerged from the data sets. The main themes summarised interview questions and responses, ensuring that the themes expressed the data analysed.

iv. Stage Five: Defining and naming of themes

According to Braun and Clarke (2006) the meaning of each theme has to be determined so as to be presented for analysis. Braun and Clarke (2006) also suggest that it is important to identify whether themes encompass sub-themes, which are considered very valuable in providing order of meaning in the data. For this study sub-themes were developed as the stages progressed and texts were related to general theoretical ideas. Coding and categorising into themes and sub-themes was only part of the analysis.

Additionally the researcher, with the assistance of a trauma psychologist as co-analyst, added their own interpretations. This was done by refining codes according to key ideas that identified significance for the respondents. Interconnections between themes and sub-themes were made, which were illustrated in the form of a diagrams, in addition to the text analysis. The researcher also searched for patterns of experiences that linked ILS paramedics and their working environment. At this stage the themes and sub-themes were related back to research question(s) and literature. With each stage the researcher became more familiar with the data and themes and sub-themes were further refined.

v. Stage Six: Producing the report

According to Braun and Clarke (2006) this is the final stage of thematic analysis at which stage a report is written on a complex topic, in a form that will satisfy readers regarding the quality and validity of the data analysis used. The report was written based on themes and sub-themes emerging from the data. The researcher and a member of the Sefako Makgatho Health Sciences University Research Committee, analysed the data separately and then cross-checked the analysis with each other until they reached consensus, ensuring the accuracy of the analysis.

The researcher then compiled a rich description of the sources of trauma the types of trauma experienced by ILS paramedics and the impact this has on their biopsychosocial health. In addition the researcher outlined the present competencies used to cope with this trauma and the training the ILS paramedics were given. From this, the essential structure of the case was formulated. The report was mailed and delivered in person to all participants for validation. The participants all agreed that the report was a true reflection of the interview conducted.

For the second stage of the study, the validated report was hand-delivered to the members of the expert panel a month before a focus group discussion was conducted to develop the

competencies needed by ILS paramedics to attain and maintain their biopsychosocial well-being. The report was available both electronically and in hard copy for the expert panel.

3.4.2 Phase Two: Focus group discussions

To achieve the objectives of this phase a focus group discussion (FDG) was held with six experts identified by the researcher at three learning and training institutes in Gauteng. The experts were selected for their varied experiences within their respective professional environments. According to Trochim (2000), an expert sampling involves the assembling of a sample of persons with known or demonstrable experience and expertise in some area. Often we convene such a sample under the auspices of a "panel of experts."

The reason the study convened an expert panel was to elicit the views of persons who have specific expertise for the purpose of the study, such as curriculum development, trauma counselling and training.

The expert panel had to meet at least one of the following criteria to be included in the study.

- Work as an emergency care facilitator at a training institute.
- Have at least five years of operational experience.
- Engaged at a training institute as a curriculum head.
- Highly recognised in the field of curriculum development and also have extensive experience in the emergency care field.
- Experienced in psychology trauma counselling

Table 3: Using the sampling criteria above the expert panel included

S/n	Criteria	Experts
1	Emergency care lecturer with at least 5 years of operational experience	4
2	Qualitative researcher with curriculum development expertise	1
3	Psychology trauma counsellor	1

The focus group members were recruited either telephonically or in person. This was followed up with a formal letter of invitation. The letter outlined the purpose and importance of the FGD. The time, venue and date for the FGD were given. To guide the FGD process a

report on the findings of the research was drafted and made available to the participants (Burns & Grove, 2010). This was done a month before the FGD took place and the FGD objectives were written in the report. The report was detailed and precise and the language was clear for all the participants to understand (Hollis *et al.*, 2002). See report in Appendix 3.1.

The FGD's objectives were verbally explained to all the participants to afford them maximum insight into the phenomena being studied. This also ensured that the participants became familiar with the topic and that each participant would be prepared to give their opinion and listen to the fellow participants.

The following questions were pre-drafted by the researcher after carefully analysing the data from the face to face in-depth interviews. Coping with post-traumatic stress requires certain core competencies and a systemic support approach:

- Identify the core competencies for coping methods that can be included when training paramedics to maintain and promote biopsychosocial self-care.
- Identify the competencies (knowledge, skills and values) paramedics require for each of the above components

3.4.2.1 Expert panel consensus process

The expert panel was engaged in a three-round modified Delphi process to develop possible competencies and also to recommend maintaining biopsychosocial health. The Delphi is used as a mean of obtaining consensus by relying on the knowledge and experience of experts (Msibi *et al.,* 2018). The first round involved the submission of the report from the in-depth interview to the expert panel a month before the actual focus group. This was so that the experts could get familiar with the data developed from the in-depth interviews (Trochim, 2000) and come prepared with ideas about the competencies needed from their particular perspective. The second round involved a focused group discussion by the expert panel where they were prompted to share the competencies (knowledge, skills and attitude) they had thought about with the group, and recommendations that could be used for the ILS curriculum. The facilitator during the second round used a white board to write down the inputs from the experts in three categories, (knowledge, skills and attitude) with strategic terms and definitions (Powell *et al.*, 2012). After each round, iterative refinements were made to the compilation based upon participants' feedback. The third round involved a consensus

process that yielded a final compilation of the possible competencies and recommendations for the ILS curriculum presented in Chapter Four.

3.4.2.2 Data collection

According to Barbour (2005), focus groups are defined as a "research technique that collects data through group interaction on a topic determined by the researcher." Focused groups can be used as an additional tool where the groups serve as a source of preliminary data collection. They can also be used to provide follow-up data to assist with a data collection. When conducting a multi-method research study, focus groups add to the data from other qualitative methods. For instance if conducting an ethnography, the researcher would simply add focus groups as an additional method of collecting the data in addition to individual interviews (Morgan, 1988). In this study the FGD was used in a modified way for the purpose of developing competencies needed by ILS paramedics to promote biopsychosocial self-care from the analysed data of Phase One of the study. To achieve all the objectives of the study, an expert panel was recruited to conduct the second phase of the study.

3.4.2.3 The role of the researcher for the focus group discussion

The researcher fulfilled the function of an administrator in preparing for the FDG and as a fieldworker during the FDG. As advised by Francis and Hemson (2009), the researcher took responsibility for all administrative arrangements such as organising the venue, refreshments and equipment to be used for the focus group. The venue for the FDG was conducted in a place that was conducive for this. It was quiet with enough space with tables arranged in a conference setting style using a table and chair for each participant of the focus group and all the equipment, which consisted of audio tape-recorder, white board and board markers to write with, extra paper was also put on each table for scribbling.

All the invited participants attended the focus group discussion. This affirmed that the participants deemed the research to be important. Upon arrival at the venue, participants were welcomed and the researcher offered them refreshments (Masadeh, 2012). A name badge was issued as the participants were seated. The researcher did not actively participate in the discussion, but in the role of a fieldworker, was operating the audio tape-recorder and taking thorough field notes during the focus group. This included a written record of the sitting arrangement, the sequence in which participants spoke in order to assist with voice recognition and the non-verbal communication such as body posture, eye contact and

gestures portrayed by the participants. When the focus group concluded there was a debriefing session to agree on recommendations for the curriculum. The researcher was actively involved and gave feedback on the analysis to increase the credibility of the focus group. The facilitator used an ice breaker to set the mood of the group, which also enhanced the feeling of participation of the group, (Hollis *et al.*, 2002).

3.4.2.4 Focus group facilitation

According to Hollis *et al.* (2002) to stimulate ideas and to allow for a build on responses of other FGD participants, questions must be asked in a very skilful manner. The FGD facilitator occupies a very critical role in the success of a focus group. In an attempt to reduce bias, as recommended by Morgan (1988), the focus group discussion was facilitated by an independent facilitator, not the researcher himself. This argument was challenged by Masadeh (2012) who said that a focus group, when used as exploratory tool, is not subjected to possible researcher bias. In this instance, the researcher chose to engage an independent facilitator as he felt that he had expertise in running workshops, but not FGDs and it was useful to have two facilitators, where one operates the recording equipment and takes notes on the process.

The independent facilitator chosen has a wealth of experience with research and in conducting focus group discussions and was a competent interviewer with the following skills:

- Experience with group discussion
- Sound communication skills
- Self and group discipline
- Leadership skills
- A friendly persona

In the opening remark the facilitator extended a warm welcome to the participants. The facilitator expressed words of gratitude to the participants for their willingness to partake in the focus group discussion. An overview of the topic and the purpose of the study were outlined and an opportunity was given to the participants to seek clarification on any part of the study. The researcher was introduced and his function as a fieldworker was explained. Permission was requested to record the FGD and all members agreed to this request. The

facilitator set out the ground rules and after that the focus group discussion started. The facilitator ensured that the questions were discussed and encouraged the participants to partake in the discussion. The facilitator then read out the two questions the focus group. The facilitator paid great attention to any cues by the participants. The pause and probe technique was used to address any cues that allowed the participants to share their thoughts or give additional information. At the conclusion of the session the facilitator provided a summary of the discussion, which gave the participants the opportunity to verify the content of the discussion. The FGD lasted for a period of two hours. Two water breaks were afforded for the participants and a long break at the end of the focus group to relax and have refreshments.

The focus group discussion included the following steps:

- Preparations
- Conducting the FGD
- Summarising
- Appreciation of participants

The objectives of this phase were as follows:

1. Determine possible competencies required by ILS paramedics to manage the effects of the traumatic stress.
2. Make recommendations regarding what the core competencies of ILS paramedics would be in order to manage the effects of traumatic stress.

3.4.2.5 Focus group conclusion

When the focus group discussion concluded, there was a debriefing session to agree on recommendations for the curriculum. The researcher was actively involved and gave feedback on the analysis, to increase the credibility of the focus group. This study is an example of the usefulness of focus group discussions to assist in a qualitative study.

The purpose of the research project was to provide the possible competencies needed to cope with the effects of the trauma that the ILS paramedics are exposed to. Stage One of the study consisted of in-depth interviews with ILS paramedics in the Gauteng province. The eleven in–depth face to face interviews were used to collect descriptive data from the ILS paramedics. Stage Two consisted of one focus group discussion, which consisted of six experts who analysed the report from the in-depth interviews with a view to develop possible

competencies for the paramedic curriculum. The collected information and developed competencies will be available to emergency training institutes and paramedics to use in preparing for the trauma they will be exposed to in the line of duty.

3.5 Trustworthiness

Trustworthiness of a qualitative study can be increased through the maintenance of high credibility and objectivity (Connelly, 2016). According to Connelly (2016) trustworthiness is the demonstration that the data analysis for the results reported are reliable, valid and that the argument made based on the results is a strong one.

Rolfe (2006) refers to the purpose of the trustworthiness in qualitative research as the need to support the argument that the inquiry results are "worth paying attention to". In very basic terms trustworthiness refers to the manner in which qualitative researchers make sure that credibility, transferability, dependability and conformability are evident in their study (Connelly, 2016) . In order to obtain trustworthiness of the results, the following criteria were applied:

3.5.1 Credibility

Credibility is involved in establishing that the results of the research are believable. This is a classic example of 'quality not quantity'. It depends more on the richness of the information gathered, rather than the amount of data gathered (Patton, 1999). The study established credibility through member checking. A copy of the audio recorded interview and the transcription of the recorded interviews were made available either by email or by hand, in order for the participants to review and verify them. Each participant was asked to verify the accuracy of the transcription of the interview to the audiotape. Credibility was further established through prolonged engagements with the participants and persistent observation in the field, which lasted for a period of two months (Patton, 1999).

The researcher spent the day working voluntarily on each of the emergency service bases, where the interviews were conducted to become familiar with the operating procedure of the selected emergency care bases. The researcher also accompanied several ILS paramedics on calls, to observe the types of trauma they face and share the experience. The information gathered by the researcher in the form of field notes, while accompanying the ILS

paramedics, was used for triangulation of data that was obtained during the in-depth interviews.

3.5.2 Transferability

Transferability refers to the extent to which the reader is able to generalize the findings of the study to her or his own context and addresses the fundamental issue as to what degree the researcher makes a claim for a generalized application of their theory (Connelly, 2016). This is achieved when the researcher is able to provide adequate information about the self (the researcher or instrument) and the research context. The researcher would also process participants and researcher / participants relationships to allow the reader to decide how the findings could be transferrable (Collis & Hussey, 2013).

The study compiled a rich description of the trauma that the ILS paramedics experience which the phenomenon that was being researched and the methodology used illuminated new realities that were included in the report. The report was emailed to the expert panel so that they could analyse the report and immerse themselves with the data for the focus group discussion. This would assist them to develop possible competencies that could be used for the paramedic curriculum and possibly other professionals who share the same value of ensuring that learners are competent enough to cope and manage stressful and traumatic working environments.

3.5.3 Dependability

Dependability refers to the way in which a study is conducted (Connelly, 2016). This should be consistent across time, researchers and techniques used to analyse the data.

The study aimed at satisfying dependability through carefully conducting and documenting the research process of the study. In addition the researcher kept a detailed track record of the research activities, process, data collection and analysis in order of sequence as they were conducted. The audit trail is stored electronically and is password protected and all paperwork is stored in a safe by the researcher. The audit trail of the study will be made available when requested, to enable future researchers to repeat the method, if not to gain the same or similar results.

3.5.4 Confirmability

According to Creswell (2007) conformability is based on the acknowledgment that the researcher is never objective. It also addresses the core issue that the findings are supported by the data collected. The study employed the services of an external researcher and also the research supervisors to audit the study.

3.5.5 Rigour

"Rigour refers to openness, scrupulous adherence to philosophical perspective", thoroughness in gathering data and consideration of all in a subjective theory development (Denzin & Lincoln, 2005). Rigour in research is defined by Holloway and Wheeler (2002: 251) as the "method through which a study demonstrates integrity and accuracy".

Methods to ensure rigour in this study included member checking, peer review and triangulation and they are described below.

3.5.5.1 Member checking

According to Kallio *et al.* (2016) this involves reporting feedback regarding findings and interpretation to the research participants and getting their responses. The study archived this by transcribing the recorded interviews then summarised and paraphrased the participant's words. The final paraphrased reports were again forwarded to the participants so that they could confirm this to be a true and fair reflection of the interviews.

3.5.5.2 Peer review

Peer review refers to the process of involving other researchers with rich experience and knowledge in qualitative research to re-analyse the raw data, listen to the researcher's problems, if any, and seek solutions (Denzin & Lincoln, 2005). The researcher enlisted the assistance of a fellow colleague with a PhD (Doctor of Philosophy) in nursing science to re-analyse the data.

3.5.5.3 Triangulation

According to Patton (1999) triangulation refers to the use of several methods or data sources in qualitative research to develop a holistic and rich understanding of phenomena. Triangulation has also been viewed as a qualitative research strategy to test validity through the convergence of information from different sources; and to enhance the accuracy of a researcher's study (Creswell, 2007). In the study both emerging experiences and effects

(those arising during the interview) and the predefined ones (topics discussed in the literature review and included in the interview guide) were identified. To ensure optimum data quality, triangulation was applied, regarding both the data from the interviews and observation from the field notes of the researcher.

Data saturation was determined after analysing the number of themes encoded and sub-themes identified, as the point at which the reading and coding process failed to generate additional information that would require further codes or categories.

3.5.5.4 Summary of field notes

Communication with the expert panel and participants of the face to face interviews during discussions assisted the researcher to understand the perceptions of a particular phenomenon (Grove *et al.*, 2012). During interaction with the participants, the researcher manually recorded the narratives and body language of the participants in a book that was used as field notes. Field notes were obtained from one expert panel focus group and ten face to face in-depth interviews. One interview did not produce field notes as the interview was conducted at the back of an ambulance and the participant was dispatched to go and attend to an emergency scene. The interview was stopped and completed when the participant returned. This disruption made capturing the notes very difficult for the researcher. Some of the field notes were used as prompts during presentation of the qualitative report to the expert panel. The prompts during the focus group were used to clarify any uncertainty or to answer any questions from the expert panel, regarding the current traumatic environment and traumatic experience that the ILS paramedics are faced with. Field notes from the expert panel were used for this study to improve the depth of qualitative findings. Following transcription of the interviews and focus group discussion, the researcher used the field notes to “add back” non-verbal content into the interview and focus groups transcript.

The field notes were stored with study data in a locked safe and protected from disclosure in the same manner as interview and focus group discussion audio and transcripts.

3.6 Bias

Selection bias was minimized by purposefully recruiting participants eligible for the study and no one was excluded if they met the inclusion criteria regardless of place of residence, gender or race. Response bias was addressed by collecting data when participants were on

duty so that participants did not perceive the researcher to be favouring a specific residential area during data collection. Allowing males and females to be part of the study ensured that the study did not favour a gender. Analytical bias was minimized by making sure that all collected data was included during the data analysis.

3.7 Reflexivity

For reflexivity in qualitative research within both post-structuralism and post-modern theories, the researcher is seen as part of the research methodology (Berger, 2015). As in qualitative research the researcher performs a fundamental role as an instrument of data collection and data analysis.

(Berger, 2015) states that qualitative research is an interactive process that cannot be value-free. Therefore the orthodox idea that interviews should be neutral is impossible. Gentles et al (2014) further argues that when a researcher acknowledges this subjectivity the researcher is able to account for what has led them to investigate the subject. (Mey & Mruck, 2018) state that the researcher as an interviewer in qualitative research fulfils an important role in how the interviewees construct their reality. The researcher's outlook on life, his/her life experiences and observations have a high likelihood of influencing the process of collecting, analysing and interpreting data. (Walsh, 2003) states that the ideal qualitative researcher becomes immersed in the phenomenon of interest and his or her bias should be made transparent. (Creswell & Miller, 2000) support the declaration of biasness by the researcher and states that interviews should be treated as a piece of social interaction whereby the researcher's contribution is as interesting as that of the interviewees. The researcher in this study is a professional soldier who has a wealth of experience in emergency care and trauma. The experiences, values and beliefs of the researcher are also briefly detailed below since they are closely linked to the concept of reflexivity. The researcher joined the military at a young age and qualified as an operational emergency care practitioner, appointed to work as a traumatology facilitator and to function as a medic during operational missions.

The researcher had been a co-contributor in the running of the emergency care training programmes and assisted in maintaining the psychosocial health of operational emergency care workers. However, based on ethical and professional requirements the researcher was also expected to adopt a professional and less dominant role in the operational work of the participants. The researcher found that as a professional, he would have been more comfortable if principles of the well–being of paramedics were adopted and implemented in

the workplace where there is equal sharing of responsibility, roles and decision making to maintain the well-being of paramedics. This is especially important because with the changing role of the employer in an emergency care set-up, employers are becoming equally important in maintaining the well-being of their employees. Given this background it was easy for the researcher to identify with and understand the different constructions being presented by the participants, both as a result of him being repeatedly exposed to traumatic events and also suffering from post-traumatic stress. Ultimately he was left to cope with the aftermath of the traumatic experiences within an emergency services context dominated by particular cultural norms and expectations. Lowery and Stokes (2005), argue that paramedics who work operationally, based on their traumatic event experiences, have a higher chance of battling to cope with post-traumatic stress. As a result they could struggle with the dynamics of social relationships and personal wellbeing that informs the phenomenon under investigation. However, while the researcher acknowledges this, he made sure that he did not impose his values or opinions on the participants during the interviews. (Creswell & Miller, 2000) argue that reflexivity allows the researcher to arrive at an in-depth understanding of the meaning of the phenomenon under investigation.

This implies that the researcher is able to draw on his own experiences during the research process to enable them to understand and identify with what is being said. However, despite the use of the researcher's own experiences and viewpoints the focus of the investigation or study remains that of understanding the phenomenon from the participants' perspective (Babbie, 2012). The researcher therefore has to put aside his own understanding of the subject of the investigation and open his mind to understand and listen to what is told to him by the participants. During the analysis phase the researcher was able to draw on his understanding of the emergency services profession and well-being discourses to substantiate what the participants were saying. At the same time it was important for the researcher to continuously reflect on his position in the research process and to remain focused on the content of the interviews. More was said about this in the section on reliability and validity.

3.8 Ethical consideration

Ethical guidelines serve as a benchmark by which the researcher can assess his or her conduct during the study (Haggerty, 2016).This relates to moral standards that the researcher should consider in all research methods and during all phases of the research process. After obtaining approval from the University of Cape town to conduct the study, permission was

also obtained from the ethics committee of the Gauteng Emergency Services and ER 24 (Appendix 2&3).The researcher followed the three principles of the Belmont Report, namely beneficence, respect of participant dignity and justice (Haggerty, 2016).

3.9 Principles of Beneficence

The principles refer to “do no harm”. The principle consists of broad dimensions that include freedom from harm and exploitation and the researcher’s obligation to evaluate the risk and benefit ratio.

3.10 Freedom from harm

In the study there was no physical harm to consider, but the researcher was mindful of the possible psychological impact. To this end the researcher was considerate to the participants’ emotions when asking questions that could potentially cause psychological harm. The participants were informed and advised to discontinue the interview if they felt at any stage that the process was harmful to them. They were also at liberty not to answer any questions that they felt were too sensitive (refer to Annexure 6).

3.11 Freedom from exploitation

According to (Haggerty, 2016), participants must be guaranteed that the information they provide in the study will not be used against them. Ethically the interaction between the participants and the researcher must not be exploitative.

3.12 Risk/benefit ratio

The researcher carefully considered the risk / benefit ratio and ensured it was kept to the minimum of risk. The participants benefited by sharing their experiences with the researcher as well as improving their knowledge on how to cope with traumatic experiences. The participants were also satisfied that the information that they provided would assist in improving the methods of how paramedics cope with the trauma they experience.

3.13 Principle of human dignity

According to (Polit & Beck, 2010) this principle includes the right to self-determination and full disclosure of all relevant information.

3.14 The right to self determination

The principle means that participants may not be forced to be part of the study." A participant reserves the right to make a decision about whether to take part in the research or not, without being penalised" (Polit & Beck, 2010: 78).The researcher purposefully approached the participants who met the selection criteria and explained the objectives and aims of the study. No financial incentives were offered to participants and they were also informed about the opportunity to withdraw from the study at any given stage. Verbal and written consent was obtained and the decision of certain paramedics to refuse to be part of the study was respected.

3.15 Full disclosure

Self-determination of the participants relies firmly on full disclosure by the researcher. The researcher has to thoroughly explain the nature of the study and the rights of the participants to either agree or disagree to be part of the study (Haggerty, 2016). The researcher disclosed that the research is contributing to achieving a Masters of Philosophy in Health Science Education (MPhil) and that the research outcomes will be shared with education and paramedic training institutions and possibly academic publications in the future.

3.16 The principle of justice

The principle includes the participant's right to privacy and fair treatment.

3.17 The right to privacy

According to (Haggerty, 2016), no information provided by participants shall be shared without their consent. The interviews were conducted in the participants' natural working settings (bases and road sides). There was no intrusion of privacy regarding the information provided. Even during the ambulance interview it was only the participant and the interviewer who sat at the back of the ambulance.

The anonymity of a person or an institute is guarded by making it impossible to positively link data to a specific institute or person. The researcher ensured confidentiality and anonymity of the interviews, but could not guarantee confidentiality during the focus group discussion. However, the data obtained was anonymised as mentioned below and no-one except for the principle researcher knows the sources (LoBiondo-Wood & Haber, 2010). For the purpose of this study no names were attached to the information obtained, but codes were used. All eleven participants were allocated a code, participant 1 to participant 11 (P1 – P11).

3.18 The following precautions were used to ensure confidentiality

The list of names, transcriptions of interviews and any electronic recordings made were stored on a password protected hard drive.

Only the primary researcher and his co-supervisors had access to this information and only the primary researcher knew the names and identities of the participants. The raw data containing identifying information or otherwise was not made available to any person other than the principle researcher named in this document.

The participants' identities were not attached to the tapes and transcriptions.

3.19 Chapter summary

This chapter described the research methodology. The purpose of this research was to optimize the valid answers to the research questions. This was achieved by making use of a qualitative, descriptive case study approach in an authentic context.

The researcher was the chief data collecting instrument. Face to face in-depth interviews were used to collect data. A descriptive method was used to make sense of the data and this also ensured that the data was trustworthy. Adhering to the principles of beneficence, human dignity and justice ensured that the participants were morally and ethically guarded. Chapter 4 will discuss data analysis and findings.

CHAPTER 4: FINDINGS AND DISCUSSION

4.1 Introduction

In this chapter all relevant data that was collected and analysed during the research study will be presented. The purpose of this study was to identify the competencies needed by Intermediate Life Support (ILS) paramedics, which assists them in maintaining sound biopsychosocial health despite the traumatic nature of their daily duties. In order to achieve this it was deemed appropriate to first explore the types of trauma the ILS paramedics experience while conducting their work as well as the coping strategies they use to manage post-traumatic stress, their present competencies and the training they presently receive, from their perspective. The prime objectives of this study can therefore be summarised as, first, to explore and describe the sources of the trauma and effects of the traumatic exposure experienced by the ILS paramedics, then to identify the coping strategies currently used by ILS paramedics to manage stress, and finally to identify competencies that should be included in the ILS paramedic curriculum so that they are better equipped to manage the stress associated with their occupation as well as self-care.

The themes that emerged from the data gathered from the participants have been summarized in Figure 1 below. It should be noted that not all information provided by the participants could be described under the themes and sub-themes presented. In thematic analysis, it is recommended that one provides richer details on a few themes rather than attempting to fit all that was said by participants into multiple themes (White *et al.*, 2012). Smith (2011) supported this approach highlighting that it is preferable to present a small number of themes which allows for detailed elaboration of each as opposed to superficial reporting of all the themes. In the current study, the themes that emerged were summarized as follows:

- Main sources of trauma
- Effects of trauma on biopsychosocial well-being
- Coping mechanisms
- Training by training institutions (see also Figure 1 below).

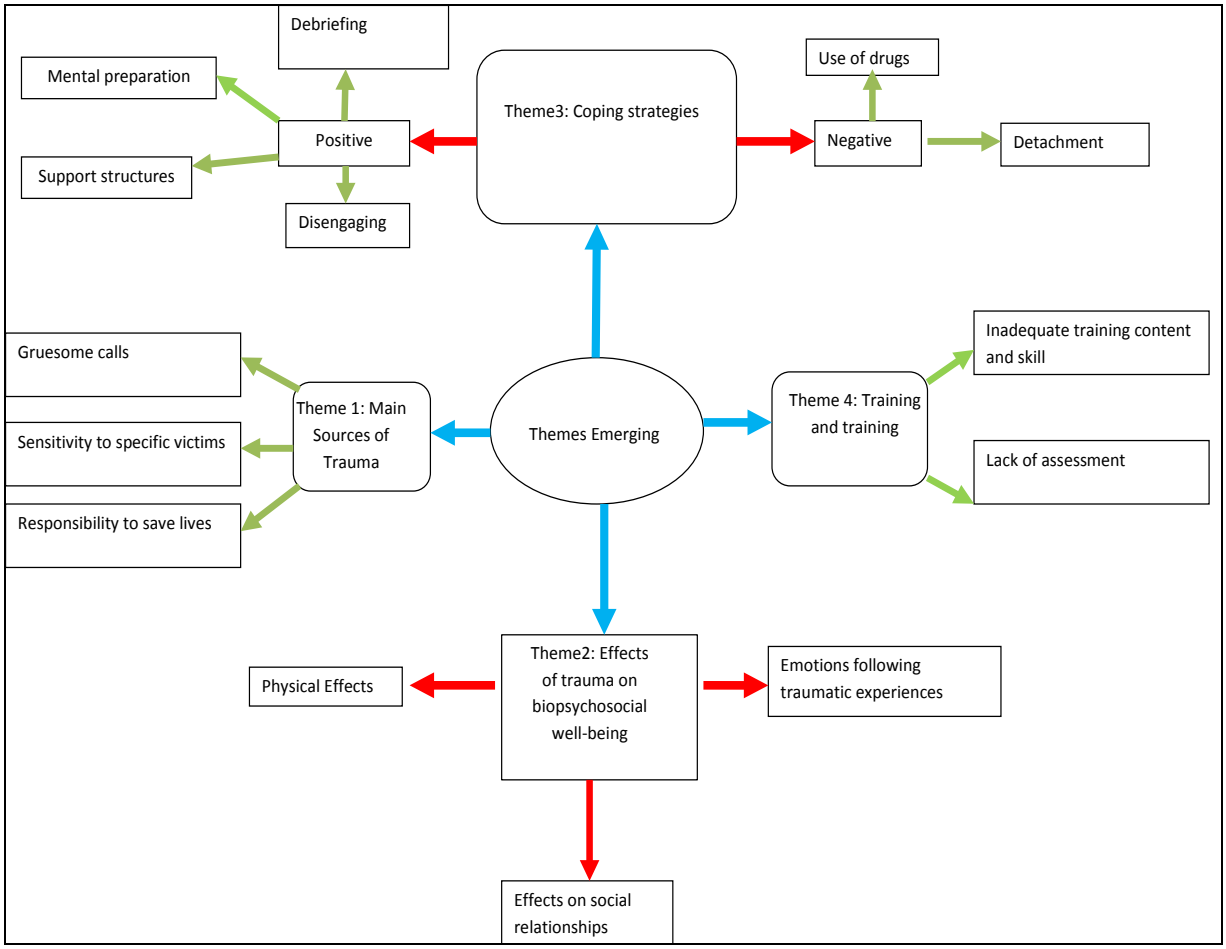

Figure 1: Themes and sub-themes that emerged

4.2 Theme 1: Main sources of trauma

The medical emergency care service profession is characterised by unanticipated traumatic events. In general, the bulk of the duties of a paramedic involve routine hospital transfers and attending to minor injuries and such duties are not regarded as traumatising or stressful. However, there are instances when the paramedics have to react to incidences where there is loss of life and/or intense human suffering. Participants in this study regarded such calls as very traumatising and emotionally charged.

On thematic analysis of the interview transcripts three sub-themes were identified as being the three main sources of trauma in the paramedic's profession in South Africa. These are:

- 'Gruesome' calls
- Sensitivity to particular victims involved; and
- The heavy responsibility and expectations to save lives.

4.2.1 Sub-theme 1.1: 'Gruesome' calls

Violent loss of life and gruesome injuries commonly occur in South Africa (Hardcastle *et al.*, 2016; Laatz *et al.*, 2019). Road accidents cause injury and death to thousands of people in the country (Laatz *et al.*, 2019). In addition to that, the high crime rate witnessed in the country also results in people being grievously injured or killed. A 2009 study revealed that close to half of the 52 493 injury-related deaths were a result of crime in South Africa (Matzopoulos *et al.*, 2015). In many cases emergency healthcare workers are the first on the scene and they deal directly with the victims. For a brief moment, at times longer, the paramedic is the most important person on the scene. Seeing blood on the ground, hearing screaming victims and seeing dismembered body parts is traumatising for most emergency health workers. Road traffic accidents (RTAs) were perceived as the most traumatic work experience by the participants, particularly where victims suffered severe injuries. These include both motor vehicle accidents (MVAs) and pedestrian vehicle accidents (PVAs). Other traumatic work experiences relate to violent crimes and suicide. Narrations by study participants clearly indicate that attending any scene where victims suffered serious injuries is challenging and traumatising for them.

- **Road Traffic Accidents**

When asked about their most traumatic experiences whilst on duty, all the participants indicated that attending RTAs is very traumatising. These include both motor vehicle accidents (MVAs) and pedestrian vehicle accidents (PVAs). The RTAs that were perceived as the most traumatic by the participants were those where victims suffered severe and gruesome injuries from motor vehicle accidents. This resonates with what has been reported in other countries. (Blanchard *et al.*, 1995) reported that 56.7% of trauma experienced by paramedics was a result of attending MVAs.

In most cases, the victims of MVAs are severely injured or dead as illustrated by the following graphic descriptions by some of the study participants:

> P1: "It was just a few hours ago, the guy was in a truck accident and the driver was pinned in the vehicle with severe fractures and had to be cut out of the vehicle. That's the only time that we saw how severe his injuries were, he had a femur fracture, with a spinal injuries and rib fractures…"

> P5: "...it was a motor vehicle accident with three patients; one of them had his head decapitated during the accident…"

Due to the speed at which modern vehicles travel, a MVA can inflict great harm to the occupants of the car or to pedestrians. Unfortunately, due to the nature of their work, paramedics frequently witness the horror of such accidents. P5 reported seeing a decapitated head and witnessing such violent death is often traumatising and can result in long lasting memories that negatively affect the mental well-being of the paramedics.

> P3, "it was a one year old who she found dead in the hands of the mother who was entrapped in a motor vehicle accident, the baby's neck was fractured and due to the nature of the trauma the mother was in shock and refused to let go of her baby."

Witnessing death is traumatizing and seeing the death of a child is even more challenging, especially when one witnesses the anguish of the parent (Barbee *et al.*, 2016). P3, above, recalled an incident in which a baby was killed and the response of the mother probably made the entire event more complicated and emotional.

Distress, emotional anguish, suffering, and grief have been reported as some of the feelings that are inherent in professionals when children die. Particularly, paediatric nurses have been noted to struggle emotionally long after the death of children under their care. The trauma experienced by these nurses is judged to be more than the trauma experienced by nurses who care for older patients (Bloomer *et al.*, 2015). This is testament to the fact that humans often find it difficult to handle the death of a child (Komaromy *et al.*, 2016) and as such it is not surprising that the paramedic, P3, singled this as one of the most traumatic events that he/she has been involved in.

Accidents between pedestrians and motor vehicles can also be gory. Some of the participants reported that pedestrian and motor vehicle accidents were extremely traumatizing for them, especially when other cars ride over people who may have still been alive.

> P8 recalled, "…last December I attended to a pedestrian accident on the highway, the victim was ran over by a car and the oncoming traffic also drove over the victim , we found body parts all over the highway.."

P10, "…the one that was most traumatic was not recent but one that I found traumatic was in December. It was a vehicle accident involving one vehicle, the guy hit road cordons at a bridge, there were three people inside so the car overturned we found one casualty laying on the road, the other two females laying on the road and apparently they were still alive after the accident but other cars, because it was midnight, drove over the patients killing them, yes that was so much traumatising."

Participants are often disturbed by the way through which lives are lost in RTAs. Attending a scene where someone was alive when they were run over by vehicles is traumatising. The paramedics are also responsible for picking the various body parts and this adds to the trauma the emergency health workers.

Scholars have reported that handling dead bodies increases the risk of PTSD. Dobashi *et al.* (2014), working with disaster relief personnel who participated in rescue operations after the 2011 Great East Japan Earthquake, reported that those who handled dead bodies were more likely to exhibit symptoms of PTSD than those who worked with the injured.

The same conclusion was arrived at by Nothling *et al.* (2015) who reported that mortuary workers are at an elevated risk of developing depression and other mental disorders due to the nature of their work, which exposes them to victims of violent deaths.

- **Violent crimes**

In addition to trauma caused by attending RTAs, participants also recalled various forms of violent crimes that they viewed as extremely gruesome and traumatic. According to the SAPS (2017) crime statistics, Gauteng recorded the highest number of violent crimes in the country in 2017. Violent crimes are hard for paramedics and other helping professionals to comprehend because their calling is to save lives.

Therefore witnessing deliberate and avoidable loss of life or harm can invoke feelings of anger and powerlessness, and is traumatizing.

P8, recalled a number of incidents, but emphasised one:

P8, "the touchy one I remember a guy was hacked with an axe and thrown into the Juksei River. The guy was dead we could see the change in skin colour which showed that he was in the water for a couple of days. We cannot swim but we had to take the

> guy out of the river. When we took him out his hands was tied and his throat was slit open you could see that a small axe was used. His entire face was hacked, the lips were hanging, and his eyes gouged out you could even see the brain. That was a touchy call which I always think of when I'm on duty."

In addition to having to witness this horrific scene, the respondent spoke about the added trauma of having to touch the body and take it out of the water. P8 remarked that he had to "be a man and pick up the body" and how that stayed with him for a long time.

According to Beaton *et al.* (1999), being exposed to charred bodies either from accidental shack fires or purposeful crimes, was another source of trauma expressed by paramedics.

> P2, "last year I responded to a scene where a couple were burned to death….They were burned beyond recognition."

- **Suicide**

Although only one respondent, referred to attending to a suicide, it is important to include this as he was noticeably traumatised by the incident. The researcher observed that when the participant recalled the suicide scene, the participant became very emotional; words were hardly audible and the participant avoided eye contact with the interviewer.

> P8, "The domestic one I just attended to in the informal settlement was a suicide; someone hanged himself from a rafter…after the police do their case report we have to pick up the body parts and put the body in bag also we have to declare the patient dead."

It appeared that it is not only the trauma of suicide or its implications, but also the handling of the body and declaring the person dead that is traumatising for paramedics. This was also expressed by the paramedic who handled the body in the Jukskei river. de Swardt and Fouche (2017) reported that medical personal are at times not comfortable with handling dead bodies let alone dismembered body parts. Death affects humans. Even the death of total strangers can trigger several negative emotions, which may include sadness, fear and anger (Clompus & Albarran, 2016).

Sub-theme summary

The study revealed that participants experienced similar emotions when dealing with gruesome injuries and especially when those led to death, even when the circumstances of each incident were different. The paramedics deal with death as a result of RTAs, violent crime or suicide. The severity of the trauma they encounter when attending to dead people is heightened by the gruesomeness of the injuries that caused the death.

4.2.2 Sub-theme 1.2: Sensitivity to specific victims (children, colleagues familiar to them or not)

Emergency care workers often use the term ‘‘critical incident’’ to refer to a category of workplace stressors that evoke more intense emotions (Halpern *et al.*, 2009). The majority of the participants reported that, other than the gruesomeness of injuries sustained by some of the victims they attend, attending scenes or incidents involving children and work colleagues is particularly emotionally demanding.

- **Attending to children**

Attending an emergency scene involving children is not an easy task since witnessing suffering in children is often traumatizing (Powell *et al.*, 2012). Watching the suffering of children who got injured or died in accidents is even more traumatising. Weber (2015) reported that most soldiers who were involved in combat were especially traumatised by seeing dead children. Combat and emergency health services are different fields, but it goes to show the importance humans attach to the well-being of children. In some countries, paramedics are given special training on post-traumatic stress disorder and on how to complete self-check stress assessments cards to specifically deal with the death of a child (Barbee *et al.*, 2016).

One participant described a particular scene where a child was the victim, which was especially traumatising for the participant. P3 narrated that:

> P3, “A one year old who I found dead in the mom’s hand stuck in the vehicle...”yes I was very angry because the kid was not in a car seat. It was sad it is never easy declaring a kid dead. You take that feeling home and try to get over it, kids are not supposed to die.”

P3 appeared to have been angered, not only by the fact that a baby had died, but also by the realisation that the baby was not properly secured in the vehicle. Eslami *et al.* (2016) stated that anger is a natural human emotion and it can be beneficial in helping one unload stress and let go of feelings. The circumstances surrounding the death of a child vary and can propagate different feelings in individuals. P1, unlike P3, attended an emergency involving a still born baby. In this case, anger did not occur, but nonetheless the paramedic found it difficult to process the episode as illustrated by the following narration:

> P1, "it was a still born. I had to pick up the kid from the carpet, the baby was stuck to the carpet, I literally pulled the baby off the carpet and the skin of the baby pilled off. My weak point in this job is when it comes to kids. It is difficult and I become more sensitive. I can handle adults that are injured but it is difficult and I'm more sensitive when it involves babies and children."

Both participants expressed that dealing with dead children was especially difficult. According to P1 and P3 if it were an adult, the trauma would probably have been less. The situation was further compounded as this specific task required "pulling a dead baby stuck on the carpet", something that even other paramedics seldom do.

Being a parent also brings in another dimension to the challenge of dealing with children in distress or dead.

> P11, "when I declared a young four year old six weeks ago, that was the worst."
> When questioned further why it was the worst, P11 stated, "it was touchy because he was an orphan being taken care of by an old lady….as a parent, if you come across such scenes you become more touched because of the pain of being a parent

It is particularly difficult to attend to injured and dead children. A study by Minnie *et al.* (2015) in Cape Town, South Africa, described this as one of the worst situations paramedics can find themselves in, especially if they themselves are parents. The "what if it was my child" feeling often engulfs paramedics who are parents, when they respond to emergencies involving children (Alexander & Klein, 2001b).

Children are particularly special victims and so are fellow paramedics. Attending a scene where a fellow colleague is a victim is often more traumatizing compared to attending a stranger.

- **Attending to colleagues**

Paramedic work often involves travelling at high speeds, making this a physically dangerous occupation. Ambulance traffic accidents (ATAs) are the major cause of occupation-related deaths among paramedics (Chiu *et al.*, 2018). During 2008 111 ambulances were involved in crashes in the Gauteng Province, which resulted in 16 deaths. In 2009, the number of crashes decreased to 88, but the figure is still high (Gauteng DOH, 2012). Several studies have looked at this phenomenon (Eksi *et al.*, 2015; Sethasathien *et al.*, 2016) and found that this is not an uncommon event as reported in Thailand, for example, where 61 ambulances were involved in accidents in 2014 and this resulted in 19 deaths and 130 injured victims (Sethasathien *et al.*, 2016). In Taiwan, between 2011 and 2016, 715 ATAs were recorded resulting in 8 deaths within 24 hours and 1844 maimed emergency health workers (Chiu et al., 2018).

Several paramedics in South Africa have lost colleagues in the line of duty. Losing a work colleague whilst they are on duty is a difficult situation to be in. The trauma is further exacerbated when one has to retrieve the dead bodies of the colleague. Alexander and Klein (2001a) found that the loss of colleagues was the second worst situation for paramedics to deal with. Information gathered during this study indicates that South African paramedics are also negatively affected by loss of colleagues as shown by the following excerpts:

> P6, “last year when one of my colleagues was on duty and involved in a bad accident, she lost her life and the other partner was critically injured. People started calling me to find out if I was okay and that really freaked me out. The harsh reality of the dangers we are exposed to really scare me.”
>
> P10,”like our crew who were involved the past Monday in a motor vehicle accident apparently one member died on the accident scene .They lost control while responding to a traumatic event. The ambulance rolled and collided with a tree. That was very emotional. I was emotional the whole day and I was on duty when I got the call. It was in the morning so it is very emotional to hear that one of your colleagues died because of the work (participant’s phone rings for an emergency call). I started

> thinking of the background like if the crew member, she was new in the profession and very young of age, it affected me emotionally when I think of her family members. I don't know them but (phone rings again for the participant to respond to an emergency incident).

When one loses a workmate whilst they were on duty, the thought of "what if it was me" often comes up. This reduces the vibrancy of one at work and may result in some thought of leaving the profession. It may also result in expectations of danger and potential harm as well as feeling of betrayal that the colleague was not able to assist in time of danger (Mitra-Ganguli *et al.*, 2017).

- **Summary of sub-theme**

This study found that when participants had to treat colleagues, or when colleagues died in the call of duty, even if they did not know them well, they felt vulnerable and confused about their safety and therefore this made them question the safety of their working environment. In South Africa, there is a worrying increase of paramedics getting robbed whilst on duty (News24, 2018). This direct assault on them further makes paramedic work more traumatising. This study found that treating children was associated with emotional effects on the paramedics, (Elmqvist *et al.*, 2010). The experience of a children dying, suffering from traumatic injuries or disease, can certainly lead to devastating physical and mental health issues on the ILS paramedics.

4.2.3 Sub-theme 1.3: The responsibility and expectation to save lives

In addition to the constant exposure to horrendous events, the other source of trauma that was expressed by the participants was the responsibilities they carried and the expectations society, their profession and pressure they place on themselves to save lives. A study on student paramedics carried out in Australia by Holmes *et al.* (2017) revealed that one of the fears the students had was that of a patient dying on their watch, particularly if there was a clinical mistake on their part.

P7 reported that paramedics often see failure to save a life as a failure on their part. As a result they are under pressure to avoid loss of lives on their watch, even though this is bound to happen.

> P7, "…prepare ourselves to save lives;…you clear your head of anything that is a problem to you at home. If you do not prepare mentally you will be negligent at work and you may cost someone to lose their life. You must set your mind to focus on the job of saving lives only".

> P6, "the job requires a lot of mental and emotional preparations and readiness; physically we work more than 12 hour shifts."

Clearly, the participants are of the idea that the lives of patients are in their hands and rightly so. However, they also put themselves under pressure as they try to avoid mistakes. It is commendable that they strive to minimize mistakes, but this may result in increased stress (Al-Zubair *et al.*, 2015). The need for perfection is increased when the paramedics are working in front of an expectant crowd or bystanders, as revealed by P10.

> P10,"You know we were taught like we have sympathy, but not to show the people that the events traumatise us, for me I'm a paramedic, you will understand that because bystanders are looking I had no choice but to be brave, later on when I was alone that's when it come to my mind that the event was really traumatic to me. I felt so bad after the accident".

The participants also reported that being the focal person in solving a problem is a source of trauma. In many cases an accident occurs, the public is told to stand and let the paramedics to do their work. The paramedics will need to be extra strong emotionally so that the public will not see that they are scared or disturbed with what they may be facing.

The weight of expectations faced by paramedics is succinctly captured by P2 as revealed in the quote below:

> P2,"people expect miracles from us".

A miracle is successfully completing a seemingly impossible task (Goodich, 2017). This statement by P2 is an admission that things will not always go as expected when responding to a call, but the public always expect the best outcome, which is to save a life. Kosydar-

Bochenek *et al.* (2017) noted that paramedics, as professionals, are particularly vulnerable to the emotional stressors associated with the desire to save human life.

Summary of the sub-theme

In a qualitative study of South African paramedics, Sparrius (1992) found a range of individual, intergroup and extra-organisational stressors, both unique and commonly associated with the emergency services. Interestingly, of the 19 stressors identified by Sparrius (1992), 3 stressors could be attributed to organisational-based stressors in this study, reflecting high levels of negativity towards the organisation because of the lack of support offered to paramedics when dealing with work related stress.

1. The long hours ILS paramedics are expected to work so that they can earn a decent salary
2. The lack of public education about ways in which society can co-operate and support paramedics during a traumatic event
3. The expectation that ILS paramedics are able to perform miracles.

4.3 Theme 2: Effects of trauma on biopsychosocial well-being

The impacts of trauma have not always been a priority for healthcare providers who employ emergency health professionals. However, the high prevalence of depression and suicides amongst those in the profession or who were once in the profession, has led to a paradigm shift with regards to how organisations view the emotional health of their employees (Rice *et al.*, 2014).

The negative impact of trauma transcends almost all facets of a person's existence. They can be manifested in different ways, which could be physiological, psychological and social.

The effect of trauma on the biopsychosocial well-being of paramedics is threefold:

1. emotional
2. physical
3. social

The latter refers to relationships and the different ways trauma experienced by participants was reported as affecting their well-being. Exposure to traumatic events is inherent in professions that deal directly with victims of death or traumatic injuries, such as emergency care workers (BLS, ILS, ALS) paramedics, fire fighters, police. Consistent

exposure to human suffering may result in one developing several conditions, which include compassion fatigue and burn-out. The psychological impacts of the traumatic events faced by paramedics in their line of work could also be felt by other professionals whom they interact with. These professionals include social workers, psychologists and other emergency healthcare professionals whose jobs involve assisting the paramedics to deal with the stress they endure at the workplace, and the paramedics themselves who deal with victims of direct trauma. This phenomenon is called secondary traumatization or vicarious traumatisation (Adams *et al.*, 2015; Regehr & Bober, 2005). The symptoms of secondary traumatisation are very similar to those of PTSD, whereas those of vicarious traumatisation are more related to a change in thought about beliefs, self and the world, especially regarding safety, trust and control (Lisa McCann & Pearlman, 1990).

4.3.1 Sub-theme 2.1: Emotions following traumatic experience

PTSD is diagnosed after a person experiences associated symptoms for at least a month following a traumatic event. However, symptoms may not appear until several months or even years later. The disorder is characterised by three main types of symptoms. These are re-experiencing the trauma, emotional avoidance and hyper-arousal (Boffa *et al.*, 2017). All these traits were experienced by participants as reported below:

1. Re-experiencing the trauma occurs through intrusive thoughts and distressing recollection of the events, flashbacks and nightmares as reported below by participants.

> P7," personally for me it is when I 'am starting to have nightmares things like that if I am having nightmares and I am thinking about a call".

> P4," I felt sorry for the kid and it stayed in my mind for a long time. I eventually got over it after 5 months on my own.

2**.** Emotional avoidance goes hand-in-hand with exposure to traumatic events (Joseph *et al.*, 2012). Many paramedics who have been exposed to traumatic exposure may try to escape their emotions. They may try to avoid thoughts (Joseph *et al.*, 2012) feelings or conversations about the traumatic event and places or people that bring the event to mind. Avoidance also refers to difficulty remembering important parts of the traumatic event and feeling as though

life has been cut short. Emotional numbness and avoidance of the places, people and activities that are reminders of the trauma are evident in the excerpts below:

P3, “I just push it into a corner.”

P6, “I was scared to continue working, I was scared that it would also happen to me. I even don’t remember their names I just treat them and put emotions aside for their benefit. It sometimes hurts the patients, but it’s for the best”

P10, “After such an event I lost interest and did not want to respond to any other call.”

3. Hyperarousal is a primary symptom of (PTSD). It usually presents when a person’s body suddenly turns into a state of high alertness as a result of thinking about their traumatic experience (Joseph *et al.*, 2012). Even though real danger may not be present, their body acts as if it is causing lasting stress after a traumatic event. Increased arousal such as difficulty in sleeping, lack of concentration, restlessness, being easily irritated and angered as reported below.

P6, “[You have] to be very careful; when you don’t sleep for two days then that’s a red.”

P5,” Yes! I got very angry because the kid was not in a car seat.”

P7,” I was scared to continue working.”

P6,” there are times when it just splurges out.”

These themes integrated emotions expressed by paramedics that encompasses the effects the exposure to traumatic events had on the ILS paramedic’s biopsychosocial well-being.

Traumatic exposure may primarily affect the workers who help survivors of trauma and disaster. Those people who may be at risk of being affected by post traumatic exposure may include emergency care workers (BLSILS, ALS) paramedics, fire-fighters, police,

psychologists and other mental health professionals. In their professions they are constantly over-exposed to victim suffering, death and traumatic injuries. The traumatic exposure puts the ILS paramedics at risk for secondary traumatisation, which is termed at times as compassion fatigue, secondary or vicarious traumatisation and burn out (Halpern *et al.*, 2014). The symptoms and emotions vary from individual to individual and the type of traumatic exposure is a major influencing factor as the ILS paramedics illustrated:

P5, “It was anger at myself and crew. I was shaken by the family with the grief and I was also full of grief for not being able to do something for this young girl”

P7, “I had it bad. I was crying. I was aggressive. I was really traumatized; bad nightmares and stuff. Eventually I just had to have a wake-up call and just go on”.

P10, “But sometimes if they don’t see you or you are in the ambulance you can even cry.”

P4, “The harsh reality of the dangers we are exposed to really scared me”

P1 “It affected me emotionally. When I think of their family members; I don’t know them, but it’s painful”.

Summary of the sub-theme

The consequence of stress and traumatic experiences compound over time, which results in paramedics struggling with PSTD symptoms and other behavioural health issues which cause an overall unhealthy biopsychosocial state (Regehr *et al.*, 2002b).The studies found that paramedics suffered from a several emotional symptoms such as re-experiencing the trauma, avoidance and hyper-arousal.

These reactions among emergency care profession are very common disorders (Fjeldheim *et al.*, 2014). This study found that the nature of operational work conducted by emergency service workers is very stressful and in South Africa there needs to be more support for the ILS paramedics, social support, and training support for paramedics to ensure they have a healthy biopsychosocial life.

4.3.2 Effects on social relationships

Experiencing traumatic events may result in expectations of danger, betrayal or potential harm within a person's social relationships (Frazier *et al.*, 2013). ILS paramedic's may feel vulnerable and confused about what is safe and therefore it may be difficult to trust others, even those whom they trusted in the past. It may be very scary to get close to people for fear of being hurt in a world that they perceive to be very unsafe. Alternatively, the ILS paramedics may feel angry at the feelings of helplessness they experience when either assisting injured victims or declaring victims dead. For the ILS paramedics these symptoms are usually less severe than PTSD symptoms experienced by direct victims in a disaster. However, this did have an affect the social relationships and careers of these ILS paramedics as reported by participants:

> P11, "it is very difficult to cope constructively, especially if you have a weak social support (home), you take that feeling home and try to get over it."

> P7," We all have problems such as financial, marital and a lot of problems, some I cannot even mention to you, problems are different and many so if you overwhelm your mind with those extra problems you will surely be in more serious problems"

> P1," I actually ask to go for counselling so as to protect myself,"

> P9, "A psychologist put me on anti-depressant medication and taught me healthier coping methods"

Summary of sub-theme

Negative social relationships can result in feelings of shame or guilt, which are often central to PTS (Treanor *et al.*, 2011). Likewise, the self-blame that is often manifested in post-traumatic stress was a common response to social effects of the trauma experienced by the ILS paramedics. The iron men culture that is rife in the paramedic's profession made the ILS paramedics feel that they are at fault for the social impact of the trauma they experience. Guilt and self-blame surrounding traumatic experiences were associated with developing

avoidant coping behaviours, such as behavioural disengagement and substance use, which are also associated with poor social relationships (Frazier *et al.*, 2013).

4.3.3 Physical effects

The emergency care service profession is filled with unanticipated traumatic events and is complicated by disturbed rest periods, long working hours and limitations in staffing. All these factors tend to affect most ILS paramedics negatively. Among 11 ILS paramedics who were studied, it was discovered that one stated that they were, or had experienced, stress-related health problems as a result of exposure to traumatic events. Some physical effects of stress are immediate and tend to cause physical, emotional, spiritual or psychological harm. Certainly the constant exposure to traumatic events has caused physical harm to ILS paramedics. In some cases the ILS paramedic did not know how to respond, or was in denial about the effect such an event has had on his/her physical health.

One participant narrated how he was physically affected due to being stressed and traumatised during an emergency:

> P9, "…even though I knew what to do, I did not know what to do first. I didn't know where to start I started having fast heart beats, I started shaking like I am in trouble now the community expects me to do something, but then at the moment I was clueless, that was traumatic. (I was physically affected during the experience due to being newly qualified as ILS and responsibility of being the senior)."

Participants also related how they presently coped with the effects of their trauma and these will be discussed in the following sub-theme regarding positive and negative coping strategies.

Summary of sub-theme

The study found that the traumatic experience the emergency care professional experiences causes stress and has a huge effect on them emotionally, but also affects their physical and social well-being. The stress can often result in hormonal changes, such as cortisol dysregulation. This could negatively affect the physical well-being of individuals (Bergen-

Cico *et al.,* 2015). The impact of these hormonal changes is logically more prevalent in high stress occupations such as the paramedical profession. These changes in hormones can directly and indirectly lead to physical health challenges that manifest as fast heartbeat, anxiety and difficult sleeping (Bergen-Cico *et al.*, 2015).

4.4 Theme 3: Coping strategies

Coping strategies are a collection of cognitive and behavioural reactions employed by an individual to ease the pressure of stressful life situations (Sadr Bafghi *et al.*, 2018). Coping strategies are often broken down into positive and negative coping strategies. Positive coping strategies result in increased wellness for an individual and make them resilient in the face of constant stressors (Delany *et al.*, 2015). On the other hand, a negative coping strategy is any strategy where the individual will inflict self-harm and is often a short term solution (Heffer & Willoughby, 2017). Failure to properly cope with stress has a number of consequences on an individual and such consequences include depression and suicide ideation. Stanley *et al.* (2016) discovered that in the United States thoughts of suicide and attempts at suicide were higher in emergency workers in comparison to the general population. In many instances negative coping strategies are used as an attempt to cope with emotional or physical health distress that seems overwhelming or impossible to deal with, leaving the sufferers with either a profound sense of avoidance, or feeling helpless or “damaged” . A study in the South African environment by Minnie *et al.* (2015) noted that paramedics receive very little or no training to help them deal with emotional or traumatic incidents. In the present study, indications are that some emergency care workers use negative coping strategies to deal with work- related stress. Such strategies, according to the American Psychiatric Association (2013), will at some point prove deleterious to their biopsychosocial well-being.

Negative coping strategies such as resorting to alcohol or depersonalization often result in one failing to discharge their mandate and the consequences of that are dire for both the individuals and those they are meant to serve. Others, however, employed positive coping strategies to manage their traumatic stress. The positive coping strategies used by the participants in this study were debriefing, whether formal or informal, mental preparation, support structures and disengaging.

4.4.1 Sub-theme 3.1: Positive coping strategies: Debriefing

Positive coping strategies reduce levels of stress. This is the result of a study by Camelia and Ioana (2015) who worked with female victims of abuse in Romania and Minnie *et al.* (2015) also found similar results in a study involving paramedics in the Cape Town metropole. Elements of positive coping strategies commonly employed by emergency care workers include several debriefing models, which offer individuals the opportunity to review the events of a traumatic experience. This allows one to ventilate feelings and also allows the supervisor to identify those who may need further assistance to deal with post-traumatic stress (PTS). In addition to formal debriefing sessions, casual discussions amongst individuals facing the same sources of stress can be viewed as a coping strategy since it also allows them to ventilate their feelings (Barbee *et al.*, 2016). In this study participants indicated peer debriefing about stressful episodes as an important way of easing stress. This is supported in a study by Schmidt and Haglund (2017) of a nursing emergency department, which found that peer debriefing in emergency departments can improve compassion fatigue and promote resilience. The following interview excerpts bear testament to this:

> P1, “I cope really well. Some days are bad, but I cope really well. I take it as it comes and hope for the best. My partner is a great deal in your work they carry you through a lot. If it was not for my partner I doubt I would have made it this far. I and my partner talk about our work a lot. About what we see and deal with every day. It started by itself; we started discussing patients discreetly with each other that’s how it developed.”

> P9, “It is shift dependant; it depends on who you are working with. On my shift after a call if it is nightshift we go to a garage where it is quiet and start discussing the cases even though it is not an official debriefing, it is just a general conversation between crews.”

> P10, “I just talk with my colleagues. I just talk -we talk about it and we get over it. That is how I deal with it like. I usually talk with my colleagues and they tell me about other incidents they experienced maybe when I was off, so that’s how I get over it.”

P7 “We talk about [it] with my crew members and forget about the call. We ask if there is anyone who was affected emotionally, mentally or physically.”

Summary of sub-theme

Participants appear to have recognised the importance of talking about a traumatic episode as a way to help ease PTS. In general, stress becomes a bigger challenge where paramedics have no support system through which they can vent their feelings and also get support (Gunasingam *et al.*, 2015). Talking to someone who would be experiencing the same challenge is often beneficial because one gets to learn how others in similar situations cope with stressful situations. Zerubavel and Wright (2012) speak about the wounded healer. The wounded healer refers to an individual whose personal experience of sickness and/or trauma has taught him/her lessons that he/she can share with others facing the same experiences. In this context, work partners can benefit from the experiences of others, making coping with PTS easier.

4.4.2 Sub-theme 3.2: Positive coping strategies: Mental preparation

Awareness of likely challenges and mentally preparing for such challenges allow the paramedic to positively cope with a stressor. Several studies have shown that activities done on purpose to prepare paramedics for difficult tasks, negate the deleterious effects of stress and often result in better performance. This is an important concept in emergency medical care because every call signifies a life in danger and that knowledge on its own is a source of stress (Holmes *et al.*, 2017). Being mentally prepared before reporting for operational duties is an important coping strategy.

P9, “First when you are [away] from home you need to know that you are going to work and you need to know that you are going to work and you need to know what kind of work you are going to do. You need to be well prepared, like psychologically, ‘okay, this is what I do for a living’ and also make sure that your ambulance is ready, and then you are confident when you report for duty. You will know that whatever comes you will be able to assist, according to your scope of practice you are able to assist.”

Participants seem to be aware of the perils of the nature of work as reported below:

P5, “Yes! We were taught about these experiences. We were told to expect this, never to take them personal. When you are done with a call don’t dwell on it just move on.”

Summary of sub-theme

They are aware that, for a moment, they are responsible for saving a life. This realisation made the participants cognisant of the fact that one needs to be emotionally prepared for potential work related stressors. Being psychologically prepared allows the participants to be confident in their abilities and will most likely result in the participants carrying out the correct procedures when they respond to a call. This is important because, according to Bohstrom *et al.* (2017), realising that a situation could have been handled better, in hindsight, is a significant source of learning and reflection in the emergency care services profession. It was evident by the crossed arms and long pauses when responding that the responsibility of savings lives is really a source of stress to the paramedics.

4.4.3 Sub-theme 3.3: Positive coping strategies: Support structures

Alexander and Klein (2001c) highlighted the significance of promoting post traumatic resolution and healthy coping strategies in emergency care workers. The aforementioned authors further stressed that psychologists and other mental healthcare professionals should be engaged to work with individuals whose professions are inherently stressful, such as paramedics, police, firefighters, nurses and doctors, in order to help them find healthy ways of coping with the stress. In this study, there are several professionals on standby to assist paramedics to deal with the traumatic events they face in their line of work.

P9, “...if it’s like a major scene that can cause PTSD we have a support system here at ER24 that we can go to the trauma counsellors, so we [have] that option [to] access, but for us what everybody does, is to just discuss the cases.”

P7, “…: Chaplains do also from time to time come and talk to us and help us manage and cope.”

P3, “…I go to my psychiatrist at my own cost. Every six months now.”

Summary of sub-theme

Participants seem aware of other methods to help them cope with the stress brought about by a traumatic event. Knowing where to turn for help is important in helping professions such as emergency healthcare. It is also commendable that there are chaplains available to help those who are traumatised. Religiosity is also positively correlated to health and mental well-being (Smith-MacDonald *et al.*, 2017).

4.4.4 Sub-theme 3.4: Positive coping strategies: Disengaging

Gilstrap and Bernier (2017) opined that avoidance-centred coping strategies can be beneficial in managing work-related stress. This is often referred to as disengaging (Gilstrap & Bernier, 2017). Disengaging refers to partaking in activities that are not related to work, whilst not on duty. This is another coping strategy that is employed by participants who were part of this study, as shown by the following interview excerpts from the participants:

> P9, " ….Like now we were playing chase, the call - so the call that we went to there were three cars involved. It was two cars and a truck. Luckily there were no injuries so when we came back you found us playing chase within the shift members. We have things that we do for fun. We just try and relieve the stress. It makes us also not to think a lot about what happened and what could have happened so that is how we cope. We interact together; we play games together, things like that."

> P5, "I befriend people that are not in the same field so that when we are together we discuss things that are not work-related" (socialising outside of work).

Summary of sub-theme

The study participants use disengagement as a coping strategy to escape from focusing on the stress they are faced with or anticipate to deal with in the course of their duties. Such activities have a much broader implication on the levels of stress experienced by the paramedics. Non-work related social activities by work colleagues helps to foster better cooperation at work significantly. This may improve results at work and also helps to equip the participants with a better sense of understanding regarding the demands of the profession, which is a source of stress. The researcher happened to arrive at the base at the time they were playing 'chase' and observed that it seemed to create a very cheerful and relaxed

working environment which may assist the paramedics to disengage and help relieve their stress.

Better results at work also increase job satisfaction, another factor that can increase professional confidence, which may reduce work-related stress (Smith & Burkle Jr, 2018).

4.4.5 Sub-theme 3.5: Negative coping strategies

When participants were overwhelmed and stressed out, they reported experiencing symptoms of trauma or having PTSD. They reported that they tried to deal with their problems through avoidance and other negative ways of coping that may cause more harm than good. These are referred to as negative coping strategies by Donnelly (2012). Negative coping strategies in this study refers to when the ILS paramedics used quick fixes that may make their mental and physical health worse in the long run, with continued exposure to traumatic events. The negative coping strategies used by participants in this study were use of drugs and alcohol, and detachment. Negative coping strategies do not allow the ILS paramedics to learn healthy ways of coping with stress of trauma as reported below.

4.4.6 Use of drugs

Drugs are very harmful to a person's well-being and are very addictive (Park *et al.*, 2019). The participants were very reluctant to talk about the use of drugs in the profession during the interviews. When probed only three made indirect reference to paramedics using drugs as reported below:

> P5, "to teach themselves how to be strong and avoid drugs. This job is not easy, but you just need to be strong and learn not to take calls personally."

> P11, "…you feel like you can lose it yourself. Usually it's alcohol and stuff. You feel you are alone"

When asked if he used alcohol, the researcher noted that he hesitated for a second and then responded

> "Uhhhm, I quickly went for counselling."

> P12, "I knew they were affected because they were drinking and using drugs and

> fooling around. You know the signs, but they would deny it. They were aggressive and reckless, but they would never talk about trauma and its effects."

Participants are aware that drugs can be used as a stop gap measure to avoid thinking about stressful situations and that this is not a good practice. However, it is interesting that the participant spoke about "being strong" as reported below

> P4, "We were taught to suck it up."
>
> P8, "When it comes to emotions they will just tell you to be brave."
>
> P5, "It was just advice on what to expect; that we should try our best not to take these experiences personal (sic), to try to be very strong."

The question is what does being strong mean? Woods-Giscombé (2010) reported that some individuals often rely on their personal strengths to deal with stress. Though on the face of it this is commendable, some individuals will avoid engaging with professionals because it makes them feel as though they are weak (Einarsen & Mikkelsen, 2002). As a result they rely solely on their internal resources, which may not be adequate and they end up worse off that they would have been if they had sought professional help.

Summary of sub-theme

The participants reported witnessing colleagues using drugs to cope with work related stress. The participants did not disclose using drugs themselves but highlighted the fact that the use of drugs as a coping strategy was prevalent in the paramedic's profession and encouraged that it should be discouraged as it leads to a disastrous state of well-being. The researcher observed that participants were reluctant to discuss the topic of drugs. They would avoid eye contact, look around and smile before hesitantly respond.

4.4.7 Sub-theme 3.6: Negative coping strategies: Detachment

It has been observed that in some stressful occupations, stressed professionals stop making their best effort and appear not to care about the suffering their patients may be enduring. When emergency care professional detach themselves' emotionally from those who they are supposed to help, this phenomenon is referred to as compassion fatigue. In cases such as these they just concentrate on doing their jobs and show no emotions, because of a fear of being emotionally attached. Such avoidance or numbness often coincides with traumatic stress (Centre for PTSD, 2015). The study found that participants used detachment as a way

of avoiding the stress they face at the workplace. The following interview excerpts emphasises this line of thinking:

> P4, “I got attached to the child - that was my mistake; you should never get emotionally attached.”

> P5, “It affected me very badly, but we get over it very quickly. We don’t take calls personally.”
> P6, “I treat the patients as an unknown. I don’t get attached emotionally to them. I even don’t remember their names. I just treat them and put emotions aside for their benefit. It sometimes hurts the patients, but it’s for the best”.

The phenomenon of compassion fatigue is important for patient care services providers because it is correlated to personnel retention, patient satisfaction, and patient safety (Potter *et al.*, 2011). The case reported above is a classic case of an employee who might be developing compassion fatigue. Failure to show emotions can be misconstrued by the respective paramedic as “being strong” just like what was exhibited by P5 in the section above. These individuals probably do not want to be judged and as a result they keep their emotions bottled up.

Some participants resorted to self-help because they feel they know all about emotional stress due to their constant engagement with people in distress. The following interview extract from P8 shows this:

> P8 “…, like I said since we work at a fire station we respond to shack fires with bodies burnt beyond recognition. Look it’s just to go out and do the job. Tell yourself that what happened. I have never called a chaplain to council me. Myself, I am a counsellor because when families are grieving as a paramedic I need to comfort and counsel people.”

The participant is of the idea that they do not need any help to deal with the trauma they are confronted with in their line of work. Chaplains are important in giving spiritual support for the distressed, but some of the participants feel they can do this on their own. It appears that

they are banking on the experience they have in counselling accident victims. It is true that emergency care workers have some training in counselling victims, but this may not be adequate to maintain one's well-being.

Sansbury *et al.* (2014) stated that trauma workers need to be equipped with tools for self-care, but they are not recommended to solely rely on them and they should instead periodically get more professional assistance.

These strategies may work, but over a period of time the feeling of anger, fear and anxiety increases with the perception that the situation is unbearable or dangerous. This could lead to outbursts as reported by P10 below:

> P8, "But sometimes if they don't see you or you are in the ambulance you can even cry."
>
> P10, "…I actually did not cope initially, so I went off sick for a few days, I had it bad. I was crying; I was aggressive; I was really traumatized I had bad nightmares and stuff eventually I just had to have a wake-up call and just go on".

It is apparent from the narration of P10 that being a paramedic in South Africa is a difficult job. Unfortunately some of the traumatised emergency care workers do not seek assistance. The narration above is indicative of one suffering from PTS. Self-care is very important in any stressful profession. It is commendable that P10 was able to get past the stress and get back to work, but without professional help, how can one be assured that one will not break down again?

Summary of sub-theme

This coping strategy was so well reported by the participants that it appeared that the ILS paramedics did not to care about the suffering their patients may be going through. When paramedics detach emotionally from those they are supposed to help it is a symptom of compassion fatigue which in turn impacts the paramedic's well-being negatively (Potter *et al.*, 2011). The researcher observed in the field that some of the participants were apathetic towards the casualties they treated and showed no affections towards the casualties. They appeared devoid of emotions while assisting the casualties.

4.5 Theme 4: Education and Training

Adequate education and training is of paramount importance in any profession. Any form of training should help the trainee cope with both the physical and emotional demands of the profession. Holmes *et al.* (2017) reported that the instruction of paramedics is slowly giving more attention to emotionally preparing students for the mental health challenges inherent in the profession.

This is because, although stress is inherent in almost all professions, it appears to be highest in the emergency care sector. This conclusion has been reached because indications are that the profession has one of the highest rates of work-related suicides than any other any profession, meaning it has greater emotional demands than most professions (Holmes *et al.*, 2017). Organisations that provide emergency services have been called upon to implement procedures to support emergency care workers within the workplace. These procedures should logically start with the provision of adequate training. A study by Minnie *et al.* (2015) revealed that eighty-two percent of paramedics who took part in the study lamented that they had not received adequate training to deal with situations that require emotional intelligence such as dealing with a bereaved family. The participants reported that they had to learn on their own whilst on the job. This lack of training resulted in their behaving in a way that could be misconstrued as unsympathetic (Minnie *et al.*, 2015).

Lack of training came out as one of the factors that compound the challenges of paramedics emergency care workers in the South African context. The theme summarised as lack of training had two sub-themes which are inadequate training content and skills as well as lack of assessment.

4.5.1 Sub-theme 4.1: Inadequate training content and skills

Training emergency care professionals entails more than equipping trainees with the technical skills to get a job done. Improving trainees' emotional intelligence is critically important. If the training is deficient in this regard, the students enter the profession significantly handicapped and as such will be more susceptible to challenges that emanate from stress. These challenges include depression and suicide. If narrations captured during the interviews are anything to go by, there is a significant problem regarding the training of these dedicated professionals and this needs to be corrected.

The interviews conducted in the study revealed that trainers or facilitators are deficient in training students on how to handle the challenges they face in their daily duties. The following interview excerpts support this line of thought:

> P7, "They tell us about the same problems I have just mentioned. They warn us that the experiences will disturb us and we need to prepare ourselves and focus on the job at hand. No-one could clearly demonstrate or show us how to prepare ourselves properly. People react differently to experiences so the preparing part cannot be taught because we are all different, with different emotions.
> Some are strong and some are weak. So the mental preparations will be very different from person to person…."

> P8, "After 10 years of being a BLS I went and did my ILS. We were informed of the possible scenes we will encounter and how to deal with the situation. When it comes to emotions they will just tell you to be brave. The qualifications require you to be men is enough. There is no specific training relating to emotions and no evaluations. We just heard about accidents in class. It depends on your personal experience."

The participants lamented the fact that they were ill-prepared for the real world when they left their respective training institutions. The best their tutors could do is to tell them to be brave and strong. Yes, one needs to be strong in the profession, but being told that you need to be strong means that if one seeks help outside of one's internal resources, this may be misconstrued as being weak. Mortimer *et al.* (2015) indicated that no human being is immune to the negative effects of constantly witnessing death and suffering. Instructors should therefore make extra efforts to equip the students with a full range of tools to deal with emotional stress.

The classes that were conducted were not objectively structured and were styled more as chat sessions, which were not beneficial to the participants as reported by P8:

> P 8, "They spoke about it, but they did not touch on it like other subjects. It was more like a thirty minute conversation. They will give you alternatives like where to go, what to do like if you like reading start reading; if you like to gym, you can go gym.

> You can speak to someone more experienced than you, a psychologist. They never taught us though like it was coming from a book, it was more like advice from someone else."

The way in which education is delivered has profound impacts on what is assimilated by students. The facilitator has a duty to ensure that different topics are given time reflective of their importance. It appears as if the aspect of coping with work-related stress in South African emergency care workers is not given adequate attention, as judged from the responses below:

> P5, "It was just advice on what to expect - that we should try our best not to take these experiences personal (sic) and we must try to be very strong."

> P6, "We also depend on CPD (continuous professional development) sessions to give us more information on PTSD. The training and companies don't put much focus on paramedic's personal well-being."

The participants were not satisfied with the content delivered by the instructors on the aspect of coping with stress. It seems the course facilitators brush over this important part of the training and leave the students to figure out how to navigate the complexities of emotional trauma when they are in the field. The emergency care workers are then forced to rely on continuous professional development (CPD) sessions as the only avenue of learning about trauma and its effect on their well-being. The participants also felt that their employers are not concerned about their well-being and this might create an unhealthy working environment, which can increase the stress level of these individuals.

Emergency care workers regularly work in highly charged unpredictable and emotionally demanding situations. Although a high level of clinical knowledge and skill is important, this is not deployed in isolation. The emergency care workers also require a certain level of emotional intelligence and it is the duty of the instructors to improve the emotional intelligence of the emergency care workers. Emotional intelligence can be described as the ability of an individual to recognise and manage their own emotional state as well as that of others. Contrary to common perceptions, emotional intelligence can be developed through

proper training (Wloszczak-Szubzda *et al.*, 2013). Employees who are able to recognise their emotional states and manage their own and others' emotions are more likely to show greater competencies in stressful occupations, such as emergency ambulance services (Nel *et al.*, 2013).

Summary of sub-theme

Certainly it has to be acknowledged that classroom based training cannot fully equip an individual with all the skills needed in the field. This has led to the development of experiential learning. Experiential learning theory suggests that experience plays an important part in learning and portrays learning as an active process where knowledge is created through what one might have experienced. Reflection on experience is essential for learning. Experience on its own may not result in learning. Therefore tutors need to understand and be competent to facilitate reflection and learning, usually in small groups (Kolb *et al.,* 2001). In such an approach an experienced facilitator is important and the job of the facilitator will be to help the traumatised worker process emotions in a healthy and positive way (van Erp *et al.,* 2018). Alinier *et al.* (2006) opined that emergency healthcare providers could benefit immensely from timely expert guidance and feedback, ideally, soon after an incident.

4.5.2 Sub-theme 4.2: Lack of assessment

Assessments are an integral part of the learning process as they encourage and facilitate assimilation of material taught (Lewis *et al.*, 2018). The fact that different individuals have different internal resources to cope with traumatic events makes the assessment of paramedical students even more important. They allow the instructor to identify competencies of an individual, making it possible to offer more individual tailored training and advice.The assessment or lack thereof is discussed in the next theme.

The finding of the study revealed that there was no assessment conducted regarding emotional and physical health as reported by the participants below:

> P6, "It was not assessed, just a lot of information on how to debrief."

> P3, “They try and tell you, but they cannot prepare you for the experience of [a] child dying and the feelings that follows (sic) that. It was just a lecture where everyone spoke about depression and how to avoid it. Not to hide it, but rather to seek help. We were not taught about counselling. We were taught to suck it up. There was no assessment that included the lecturer”.

The participants correctly identified that assessments are important in ensuring that a student paramedic is adequately equipped for the tasks ahead.

Summary of the sub-theme

This part of the study shows that the training institutions do not focus on competency-based education (CBE) and training when training the participants in trauma stress management topics. CBE is a form of outcomes-based education (OBE).

The HPCSA has encouraged all health professional education training institutes to adopt this approach to developing their curricula and training the learners.

The training institutions could employ more involving strategies to help emergency care workers deal with a range of stressors that they might encounter in their profession. Such strategies include role plays or simulations with professional actors. Though still not “the real thing”, simulations and role playing is still a rung above a brief chat on how to handle trauma. In Australia for instance, role playing and simulations were used to train emergency care workers on how to handle bystander conflict. Those trained reported an increase in competencies and confidence, which could translate to less work-related stress (van Erp *et al.*, 2018).

The HPCSA (2005) and DHET (2010) identified several competencies paramedics should have acquired by the end of their training. These competencies are categorised into key competencies, which is similar to a graduate outcome, and accompanying enabling competencies, which are designed to assist the learner to achieve the key competencies by the time they graduate. The study showed that these accompanying competencies, especially on the subject of dealing with trauma, are not assessed in many instances. The omission of training emergency care workers on emotional health is not unique to South Africa. In many countries, training of emergency care workers concentrated on practical skills, but it has since been realised that the emotional well-being of the service provider is just as important. To this end training institutions must pay attention to this aspect (O’Brien *et al.*, 2014).

Modules used in the training of emergency care workers, now include a chapter on health and wellness. The objective is to empower the emergency care workers with the knowledge and skill to ensure they are competent to cope and manage the effects of post-traumatic exposure. The instructors are probably not yet competent to effectively teach this topic. Only one of the eleven participants in the study felt that they were adequately trained in dealing in dealing with traumatic events and post-traumatic stress and the other ten participants reported low confidence in their ability to deal with traumatic experiences and the after-effects thereof.

In concluding this section, institutions responsible for training emergency care workers need to have clearly outlined competencies for the health and wellness module. The institutions will have to increase their efforts in imparting knowledge and skills on how best emergency care workers can cope after traumatic experiences. They also need to increase the time allocated to the module that deals with biopsychosocial health, because when emergency care workers are developing traumatic stress without having recourse to knowledge and skills of how to remedy the situation, both the patients and emergency care workers will suffer.

4.6 Expert panel focus group discussion (FDG)

The second phase of the research was aimed at recommendations to improve competencies of paramedics produced by various training institutions, to cope with traumatic stress and enhance self-care for biopsychosocial well-being. This was achieved by conducting a focus group discussion as part of a modified Delphi. The focus group discussion was attended by six experts, four paramedics who have expertise in training paramedics, one qualitative researcher with curriculum development expertise and a psychologist in the trauma field.

4.6.1 Competencies identified

The following competencies were identified by the expert panel to support the intended outcomes of the health wellness module, which are to facilitate – or which are as follows.

- The need for paramedics to understand factors that promote health and wellness
- A proactive approach that encourages paramedics to take responsibility for their health
- Skills for counselling patients on healthy habits and lifestyle

- Strategies for consulting with professionals in a partnership for shared decision-making.

The following specific competencies, suggested by the expert panel, outline the knowledge, skills and attitude each learner is expected to acquire prior to graduation:

Knowledge

- The learner should demonstrate the ability to:
- Discuss the principles and perspectives of health promotion and wellness
- Describe the essential components of health promotion appropriate for self-care
- Describe the role of psychologist, social worker and chaplain in health promotion
- Identify the screening activities for necessary health promotion
- Describe principles evolving in the implementation of, and health impact of, affected population for each of the health indicators (physical activities, weight gain and drug abuse, mental health and access to services that promote healthcare).

Skills

The learner must demonstrate the ability to:

- Communicate meaningfully with colleagues and social support professionals about self-care; including biological, psychological, social and spiritual as part of the comprehensive pre and post trauma care.
- Demonstrate proper techniques to encourage colleagues' participation in a shared responsibility for self–care.
- Demonstrate completion of recommended preventative trauma screening activities such as the Perceived Stress Scale (PSS).

The expert panel also discussed that when incorporated into the health and wellness module they could contribute to a more competent, effective and biopsychosocially stable paramedic.

Attitudes

The learner will demonstrate the ability to:

- Appreciate how lifestyle, health status, behaviour and psychological factors interlink in their overall health and wellness.

- Appreciate the multi-dimensional character of self-wellness including the physical, intellectual, emotional and spiritual dimensions.
- Appreciate and accept active participation as an essential component of self-healthcare.

Apart from the main aim of developing relevant competencies, several other pertinent factors were identified by the expert panel as being responsible for the production of paramedics who lacked the necessary skills to properly cope with the trauma they experience at work. The researcher felt it pertinent to report on these factors.

They include the following:

- Training of poor quality
- Insensitive instructors
- Incompatible course material
- Candidate selection
- A heavy reliance on experience

4.6.2 Training does not fully equip students for the real world

The panel acknowledged that the current training methods do not adequately prepare paramedics for what they will encounter once in the field. The following comments from the participants are the basis of this argument.

> E1: "If we look at a simple thing like CPR. When we teach people CPR on mannequins and they are lying still with their heads waiting for you to pull it back, you are gonna live here and you gonna think that you are really competent until you encounter a human being and everything wobbles, there are sounds. It's a totally different situation from what you were taught. In the training we need to be more honest with students and tell them this is what you are going to encounter."

> E2: "We have seen doctors who finish the whole programme, they become medical doctors, they start working in casualties, they can't cope and within a year they stop being medical doctors and they go to another profession. This means during their training they were not exposed to the kind of situations they will be dealing with".

4.6.3 Insensitive instructors

It has been realised that for a long time, training of paramedics concentrated on what the paramedic needs to do to save a life. Their emotional well-being was not given the attention it requires (Adams *et al.*, 2015). The following statement from one of the participants makes this point clear:

> E1: "...the instructors that you meet are not nice people. It feels like they want you to fail. Those guys are ruthless people. Their job is to get you off the course as quickly as possible. In some institutions they may start with thirty and qualify only four".
>
> E3 "... in some professions if you are unable to do tasks which are difficult mentally or emotionally, the instructor can call you a chicken."
>
> E2: "calling a trainee who seeks help from a psychologist a 'chicken' reflects badly on the senior. It means you do not understand. We must look and see if the seniors are really supporting the juniors so that we identify what is lacking and do further stuff development."
>
> E1: " ...having an experienced guy covering the inexperienced care-giver will only work if the experienced guy is still sensitive to death and dying. What happens in the paramedic environment is that we make jokes about everything and that [is] a coping mechanism, but if you are a junior and you are not used to this it gonna hurt you if people are insensitive. So if the seniors can be sensitive than it will be an awesome thing..."

The quotes above reveal a lot about paramedic training in South Africa. It can be argued that the instructors have not been trained on the importance of emotional or mental well-being of the paramedics or maybe they do not appreciate that PTSD is something that can affect anyone and should be handled appropriately. The fact is that only recently has the emotional well-being of emergency care professionals taken centre stage (Howard & Navega, 2018). It is likely that these instructors were trained when mental or emotional well-being was not a priority.

4.6.4 Incompatible course material

Most of the course material used for training paramedics are of European origin, such as Mosby (O'Toole, 2017) and Essential of paramedic care (2005). As a result most of the literature approaches and techniques used to deliver knowledge are taken from authors in the global north. In some fields this is not a challenge, but in others the information might not be directly compatible. The discussions also revealed that the main literature used in training paramedics is from a book written for use in the global. Commenting on this aspect, some of the participants had this to say:

> E1: " ... it is a rich vein of knowledge, but it does not suit the African continent. Which means at some stage, the South African system, I don't know the universities or the people presenting the BTech they must write the South African based book based on South African conditions, South African population and the South African climates. Yes, it is because we haven't transformed yet... the South African indigenous knowledge is not captured in the books being used, which means we are teaching American medicine, Australian medicine in a South African context and it's not the same thing..."

> E5: ".... I can also add that South Africa is classified as a developing country. America and other areas where Mosby is based are far and advanced developed. I think it's about time we modify the info, or come up with our own..."

4.6.5 Candidates selection

In many professions, academic performance is used as the main criteria for selecting candidates for training. However, this may not be the best approach when selecting candidates in healthcare professions. In general, the candidates must be competent enough to assimilate and recall what they would have been taught and they should also have certain attributes to help them be more effective. Russ *et al.* (2009) stated that staying on a job is an active process that is actually different from simply not leaving. Failure to get the right candidates from the onset may result in having paramedics who are not as engaged in the profession, but stay on because they need a job.

E5, giving an example from nursing science stated that: "... in nursing science we will be doing interviews to identify attitudes because using academic marks has proved to be insufficient..."

4.6.6 Heavy reliance on experience

Individuals engaged in stressful professions, at times, learn to deal with trauma as they experience more and more of the trauma. Some participants in the focus group revealed that they have learnt to deal with stress on their own as shown by the following statements by some of the participants:

E2: "since being a junior doctor to where I am now, I have never had a debriefing. You just deal with it yourself..."

E4: "Experience is the best teacher. We might be having coping mechanisms like chaplains, but with experience you learn to live with it. I remember when I was still young, I am not a faint hearted person, but it could still hit me until learnt to thrash it off..."

These statements from experienced workers who endure traumatic stress in their professions are indicative of the lack of attention to mental health during their training years. It is now acknowledged that those in stressful occupations need to be equipped with strategies to deal with stress rather than waiting and hoping that they will figure this out for themselves. A likely reason that instructors do not expend much effort in teaching students about wellness is because they were trained before mental health was a priority.

4.6.7 Further recommendations from the expert panel

The panel of experts recommended that the training phase of the paramedics should be as realistic as possible. It was suggested that the training should attempt to simulate what actually happens in the field. There are several strategies that could be adopted to achieve this. For example the trainees could be taken to army training fields where there are artefacts that better resemble dead and decapitated bodies. The training should also have a mandatory period of attachment to a paramedic team reacting to a real life situation and this should be done as early in the training process as possible.

It was recommended that instructors who teach paramedics should be competent enough, not only to teach technical details of the profession, but to be able to impart information in a sensitive manner, taking into account the emotional state of the trainees. They should be able to impart knowledge in a manner that is sensitive to the fact that being a paramedic is emotionally challenging. They should be approachable so that those who are struggling will find it easy to approach them. It was also acknowledged that times are changing and mental health now needs to be taken seriously. In conforming to the changing landscape, it was also recommended that the trainers should be evaluated on what they know regarding emotional well-being of paramedics and given refresher courses to make them more effective in the manner they deliver the training.

Placing a trainee paramedic under the instruction of an experienced one is also important in the training of paramedics. To summarise, it was agreed that instructors should be ethical, sensitive to the feelings of the students and approachable.

It was unanimously agreed that it is not in the best interests of South African paramedics to be trained using literature from other parts of the world. Different cultures and resource availability may constrain the paramedics from using recommendations from such books. To this end it was recommended that local universities should produce books that are sensitive to South African conditions.

It was further recommended that training institutions should engage psychologists to develop candidate selection tools. The general consensus was that the best candidates are those with a genuine interest in the field, not those who drift there because they were not able to secure employment elsewhere. Instructors need to be sensitised to the importance of helping students to access the resources they may need to cope with stress.

4.7 Chapter summary

This chapter presented the themes that emerged after conducting thematic analysis on interview transcripts of information obtained from emergency medical healthcare workers in Phase One of the research, as well as results of the focus group discussion with the panel of experts in Phase Two of the research.

The first theme focused on the main causes of trauma and revealed that exposure to gruesome injuries and death has traumatic effects on paramedics. The trauma was heightened in cases

where the paramedics had to deal with dismembered or greatly disfigured bodies of people involved in road traffic accidents or victims of brutal murders. It was also revealed that attending accidents involving dead children and work colleagues are particularly more challenging. The heavy responsibility and expectation of performing miracles to save lives are also a major cause of stress, adding to the impact on their biopsychosocial well-being.

The second theme was on the biopsychosocial impact of trauma on the participants. In this theme it was discovered that the weight of expectation and the types of trauma emergency healthcare workers are exposed to have negative impacts on their well-being.

The effects of what the emergency healthcare workers experience when responding to a call include invoking negative emotions such as anger, especially when they felt that the chances of death could have been lessened if victims had followed recommended security measures such as securing a baby on a car seat. The emergency healthcare workers also indicated that they had to suppress their emotions whilst at a scene, resulting in them crying afterwards to release their “bottled” feelings. Certainly, it was concluded that crying was a way of dealing with some of the trauma. The emergency healthcare workers also had empathy for the victims. The participants also revealed that they had to find ways of “letting the emotions go” in order to continue functioning as they should in their profession.

The third theme focused on coping strategies. The coping strategies were divided into positive and negative coping strategies. Positive coping strategies included formal and informal debriefing, mental preparation which enabled paramedics to be prepared for the worst when they respond to calls, utilising available support structures such as chaplains and disengaging from work when they are not on duty or attending a scene. Negative coping strategies revealed included using drugs and compassion fatigue.

The final theme was on education and training. It was revealed that the emergency healthcare workers lacked education and training on how to deal with the emotional trauma they encounter in their profession. The participants also indicated that they would benefit immensely if they were supervised by experienced personal, especially when they enter active duty after their training.

The focus group discussion revealed that the paramedics produced by training institutions lack the necessary skills to deal with the emotional trauma they experience at work due to

several factors. The first factor that was revealed was that the method of training does not expose the students to what they will actually experience when they are in the field. The second factor was that the instructors do not fully appreciate the importance of emotional well-being for the paramedics. The language used when instructing the paramedics makes it difficult for them to seek help when they struggle with traumatic experiences for fear of being regarded as weak. It was also revealed that the course material used was written for the first world and this may not always be compatible with South African conditions. It was also discovered that the candidate selection process does not take into consideration the attitudes of the students.

Finally, the panel developed a basic set of competencies that could be incorporated into the current paramedic curriculum to improve the competencies of the paramedics produced by various training institutions. The panel also advanced more recommendations that are not aimed at improving competencies, but simply to make the training of paramedics more relevant to what the paramedics will face in the field.

CHAPTER FIVE: RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

This chapter presents a summary of the methods used to conduct the research as well as the research findings, specifically evaluating how the findings satisfy the demands of the research objectives. This chapter also presents recommendations and conclusions based on the data gathered from interview participants; as well as information gathered from the focus group discussion with several experts in the field. In a nutshell, it was determined that training institutions were ineffective in imparting the necessary competencies needed by paramedics to cope with the stress they endure in the field. It was deemed appropriate that this section will proffer changes that paramedic training institutions may adopt to improve the competencies of the paramedics they produce. Competence, in this regard, is defined as an individual's overall ability to fulfil a task and it is acknowledged that emotionally burdened paramedics are likely to be less competent.

5.2 Summary of research methods

The study relied on semi-structured interviews as the main data collection method for the first part of the study. For the second part, data was collected by way of a focus group discussion with experts in relevant fields.

The in-depth interviews were conducted with eleven respondents using, a pre-formulated semi-structured interview guide. The data was captured using a voice recorder as well as field notes. The data from the interview was transcribed and coded for thematic analysis and the findings were presented and discussed in Chapter 4.

5.3 Achieving the objectives of the study

Under this heading, major findings of the study will be summarised and it will also be indicated how the findings contributed to the researcher achieving the objectives of the study. It begins by summarising the themes from Phase One of the study, and then summarising what came out of the focus group discussions in Phase Two of the study.

- **Objective one**

The first theme extracted from the participants' responses was summarised as "Sources of trauma". The main sources of trauma could be put into three sub-themes which are, "gruesome calls", sensitivity to specific victims and responsibility to save lives.

“Gruesome calls” in this study refers to instances where the paramedics attend a scene where people would have died or were seriously injured and in most cases this will be road traffic accidents. Such scenes are characterised by decapitated bodies and the paramedics have to recover the dead bodies or attend to the injured. Other “gruesome calls” are the result of violent crime and suicide.

The paramedics also indicated that they are emotionally affected when they attend scenes where young children or work colleagues are the victims. In such incidences, thoughts of ‘what if it was me or my child?’ make it difficult for the paramedics.
Overall, the paramedic profession comes with grave risks. For example ambulances travel at high speed to arrive at accident scenes quickly and the paramedics are aware of the dangers. This is why it is difficult for those attending accident scenes involving colleagues, because of the awareness that this could happen to them as well. In addition, the sight of children suffering is difficult to bear. Children are (somewhat) considered the innocent victims and it is easy to blame the adults for their suffering. Some paramedics reported that they felt angry when attending dead or injured children in cases where they felt the adults had failed to protect the children.

The last sub-theme under the theme “Sources of trauma” is summarised as ‘the responsibility to save lives.’ The paramedics indicated that they are aware that their jobs involve saving lives. However, this was not always possible. They also feel that communities expect them to work miracles and this pressure of expectations is a source of stress and trauma. Even when communities are not expecting miracles, the paramedics feel they have a duty to save lives and when someone in their care dies, they feel they have failed and it is always difficult to see a person dying on one’s watch.

These three sub-themes satisfied the demand of the first objective of the study, which is “to observe and describe the types of everyday trauma experienced by ILS paramedics through interviews”.

- **Objective two**

The second theme is summarised as ‘effects of trauma on biopsychosocial well-being.’ It is now well known that the stress paramedics endure affects them personally and at different

levels. The impact of stress can be put in three categories. These are psychological, physical or social, hence the term biopsychosocial. The emotional effects can lead to one developing post-traumatic stress disorder (PTSD).Though the researcher is not a trained psychologist able to diagnose PTSD, some of the narrations given by the participants suggested that they may have suffered or were currently suffering from PTSD. Some of the symptoms of PTSD that were also observed during narrations by the participants included vivid recollection of past traumatic events, experiencing nightmares and sudden and unexpected flooding of memories.

Some of the participants also indicated that the stress they endure at work also affects their social relationships and is compounded by other pressures of life, which include financial struggles. They also indicated that their trauma is likely to be more pronounced if they lacked strong social support bases. However, the participants did not open up as expected on this issue. The same can be said about the physical impacts of trauma. It is known from other studies that stress can cause physical health problems such as high blood pressure, back pain and even heart disease (Ghadri *et al.*, 2016).

The third theme was summarised as "Coping strategies". The study revealed several coping mechanisms that are employed by the paramedics. These strategies are separated into positive and negative coping mechanisms. Positive coping strategies that were revealed by the interviews are:

Debriefing: This is when the paramedics talk about the scene they have just attended; which enables colleagues to offer emotional and physical support to one another.

Mental preparation: This strategy involves raising awareness of possible challenges they may face while on duty and this allows them to positively cope with a stressor (Alinier *et al.*, 2006)). Several studies have shown that activities done on purpose to prepare paramedics for difficult tasks reduces deleterious effects of stress and often result in better performance.

Support structures: Support structures such as chaplains and professional counsellors are important in helping the paramedics to deal with the stresses they endure at work. Several participants revealed that they do visit such professionals on a regular basis.

Disengaging: This refers to partaking in activities that are not related to work when not on duty. This is another coping strategy that is employed by participants who partook in this study. Gilstrap and Bernier (2017) opined that avoidance-centred coping strategies could be beneficial in managing work- related stress.

Negative coping strategies

When participants were overwhelmed and stressed out, they reported experiencing symptoms of trauma or have PTSD. They reported that they tried to deal with their problems through avoidance and other negative ways of coping that may cause more harm than good. This is referred to as negative coping strategies by Donnelly (2012) and Minnie *et al.* (2015). Examples of negative coping strategies are when the ILS paramedics use quick fixes that may make their mental and physical health worse in the long run, with continued exposure to traumatic events. Negative coping strategies do not allow the ILS paramedics to learn healthy ways of coping with the stress of trauma as reported below. Negative coping strategies that were discovered included:

Use of drugs: During the interviews the participants were very reluctant to talk about the use of drugs in the profession. When probed, only three made indirect reference of paramedics using drugs. Participants are aware that drugs can be used as a stop-gap measure to avoid thinking about stressful situations and that this is not a good practice

Detachment: The study found that participants used detachment as a way of avoiding the stress they face at the workplace. It has been observed that in some stressful occupations, stressed professionals stop giving their best efforts and appear not to care about the suffering their patients may be going through.

This theme and accompanying sub-themes helped to satisfy the demands of the second objective, which was "to describe and critically analyse the coping mechanisms they use to deal with traumatic stress, from the information elicited in interviews".

- **Objective three**

The fourth and last theme that emerged from the interviews was summarised as "Education and Training". It is generally agreed that the quality of training one receives for a particular profession determines how one will perform once one gets into the field. The paramedic profession is no different. This theme had two sub-themes, which are "Inadequate training content and skills" and "Lack of assessment". It was discovered that although training on the technical part of being a paramedic is appropriate and adequate, the paramedics were poorly trained in handling or dealing with the stress that is inherent in the profession. The paramedic training course in South Africa has a module called 'health and wellness,' which when taught correctly will equip the paramedics with the skills needed to deal with work-related stress.

From the interviews it emerged that instructors hardly teach this model and they may even label someone struggling with work- induced trauma as being weak.

The paramedics also said that there is a need for assessment by instructors so that they are able to adjust better to working in such an emotionally-demanding field. The findings described in the fourth theme to some extent satisfy the demand of the third objective, which was put down as “to describe the competencies the paramedics identify from their present curriculum to help them deal with traumatic stress by interviews and document analysis”.

- **Objective four**

The second part of the study, which involved conducting a focus group discussion with a panel of experts

The focus group discussion revealed that the paramedics produced by training institutions lack the necessary skills to deal with the emotional trauma they experience at work due to several factors. The first factor was that the method of training does not expose the students to what they will actually experience when they are in the field. The second factor was that the instructors do not fully appreciate the importance of emotional well-being for the paramedics. The language used when instructing the paramedics makes it difficult for paramedics to seek help when they struggle with traumatic experiences, for fear of being called weak. It was also revealed that the course material used applies to First World conditions, which may not always be compatible with South African conditions. It was also discovered that the candidate selection process does not take into consideration the attitudes of the students. Finally, the panel developed a basic set of competencies that could be incorporated into the current paramedic curriculum to improve the competencies of the paramedics produced by various training institutions. The panel also advanced more recommendations that are not aimed at improving competencies, but simply to make the training of paramedics more relevant to what the paramedics will face in the field.

5.4 Limitations of study

The study was conducted in the Gauteng Province, the economic hub of the country and as such the emergency care facilities are probably better than in other areas, especially rural provinces. The researcher does not claim that this study can be generalized to any other areas Research done on this topic in other areas of South Africa may reveal different findings.

The findings of this study may not be generalised to these areas.

The research could not adequately interrogate the aspect of trauma on physical pain. It is known that stress can cause joint pain, lower back pain and chest pains. It appears the participants in this study were not aware that stress could cause physical pain; hence they did not mention this as an impact of stress. A study more focused on this aspect needs to be carried out. This is important because someone may spend a lifetime taking the wrong medication for pain they may be feeling.

5.5 Recommendations

5.5.1 Education and training of ILS paramedics

• Development and implementation of wellness module.

• Assessments (theory or practical) to included recommended competencies

5.5.2 ILS paramedics practice environment

Implement strategies to optimize workplace support to manage stress and improve paramedics' health such as:

• Provision of adequate human and material resources

• Regular debriefing sessions.

• Updating continued staff development of ILS paramedics on stress management skills.

5.6 Recommendations for future research

- Carry out similar research in other provinces of South Africa to see how it compares with the current findings.
- Evaluate the opinion of the emergency care facilitators on how the health and wellness module can best be delivered

5.7 Chapter summary

The objectives of this research have been identified and the findings of the data collected have been discussed. It has been concluded that the competencies needed to prepare ILS paramedics in Gauteng for traumatic stress in the work environment has not been taught effectively. The competencies identified by the expert panel should be used to develop competencies to be included in the Health and Wellness module and all training institutions

should employ a psychologist and social worker to form part of the facilitators teaching the module. These findings have revealed that the training of paramedics Health and Wellness module remains a major problem for training institutions in the Gauteng Province, due to omissions in curriculum development and implementation.

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7. Appendix

Appendix 1: Semi structured In-depth interview guide questions

1. Can you describe what does your day to day job as a paramedic entail?
2. Can you explain in what way do you see this job affecting you?
3. When you were in training were you informed or taught about some of these effects you have just mentioned?
4. Can you explain if there is any kind of help you are getting periodically to overcome some of these challenges?
5. Can you explain how you cope with the effects you have mentioned?]
6. Are there are any recommendations you would make regarding training as a paramedic?
7. What would those be and why would you regard them as necessary?
8. Are there any recommendations for the training institutes you would make regarding training of paramedic? What will those be and why would those be regarded as necessary?

Probing Questions

1. Describe the worst traumatic scene you have helped manage?
3. What are the most common traumatic scenes you have managed or helped to manage?
3. How many years have you been practicing as a medical emergency care giver?
4. How has the exposure to those scenes affected your daily living if at all?
5. How often does your emergency care base arrange for psychology tests
6. Please explain how trauma debriefing is conducted?
7. Are trauma self-assessment tools readily available at your base?
8. Do you experience changes in your memory, perception and feel helpless? If so please elaborate?
9. Could you gauge your level of trust and feelings about your safety, self – esteem and self – control?
10. Do you think your work experience has affected your feelings towards safety, self-control, trust and intimacy?
11. Do you feel helpless and disinterested when you think about your work?
12. Did your theoretical training include all the experiences you have gone through in the field?
13. What self-care interventions were you trained about?
14. Do you think that your experiences at work have affected your lifestyle?
15. What would your advice to training institutes be regarding the training curriculum?
16. Do you have anything else to share?

Appendix 2: Pre-interview questionnaire

1. Full Name:

_____

_____2. Age:

18 - 25	26 – 30	31 - 40	41 – 49	5 0 +

3. Emergency care training institute attended:

School	College	University

4. Area of current operational duties:

_____

_____

5. Highest Level of training completed:

_____

_____

6. Numbers of year working operationally:

1 – 5	6 - 10	11 – 15	16 +

Appendix 3: Expert Panel Report

Dear …….

Thank you for agreeing to examine this report on my research and agreeing to be part of a focus group discussion (FGD) to developing competencies (knowledge, skills, attitudes, values) that need to be incorporated in their education and training to better manage traumatic stress and promote self-care of paramedics.

As agreed the FGD will take place on (Date, time and venue)

Below is a brief introduction to the study as well as a summary of the findings, but first a brief description of what the research aims to achieve in this second phase of the study to fully answer the research question.

The second stage of this research focusses on competency based education, with the assumption of this study that an account of the types of trauma experienced by ILS paramedics; the effects of it on their biopsychosocial health is necessary and a presentation of the coping mechanisms currently used can assist in developing competencies for the ILS paramedics' curriculum. This approach hopes to assist in promoting sustainable self-care to help paramedics deal with the effects of traumatic stress using constructive (positive) coping mechanisms.

Government sectors have put an emphasis on competency-based instructional materials, (South African Qualification Authority, 2013). Describing and categorizing competencies for teaching, learning and assessment is a necessary first step in developing a curriculum. The purpose of this study is to develop competencies for the ILS paramedics' health and wellness chapter. The module based on this chapter has no clearly defined competencies for sustaining biopsychosocial wellbeing. On the other had the health and wellness module covers the following topics, (Mosby, 2005)

1. Basic physical fitness
2. Personal protection from disease
3. Death and dying
4. Stress and stress management

5. General safety considerations

Frank, Snell & Ten Cate et al (2010: 642) suggest six steps for planning a Competency Based Medical Education (CBME):

1. Identify the abilities needed of ILS graduates.

2. Explicitly define the required competencies and their components.

3. Define milestones along a development path for the competencies.

4. Select educational activities, experiences, and instructional methods.

5. Select assessment tools to measure progress along the milestones.

6. Design an outcomes evaluation of the program.

This study will be guided by steps 1 and 2 for stage two of the research. The objective here will be to identify the competencies needed to ensure the paramedics attain and maintain optimal biopsychosocial health through sustainable self-care that helps them deal with traumatic stress constructively.

In addition these competencies need to be presented as abilities that will form an integral part of the paramedic's professional career. When these competencies for promotion of biopsychosocial health of ILS paramedics are developed, the curriculum can be designed around them. This is not part of this study, but the intended result of presenting these research findings to educational institutions that train paramedics.

Brief introduction

This study came about regarding a concern of the researcher that paramedics work in stress-inducing environments and as a result encounter possible trauma. Their occupational experiences such as deaths of the patients under their care, violence and assault can cause emotional, psychological, mental and physical challenges for some paramedics (Regehr, Goldberg & Hughes, 2002). Some studies suggest that these experiences put the paramedics at risk of developing stress disorders, depression, anxiety, emotional withdrawal, hypertension and possible general body pain (Regehr et al, 2002; Alexander & Klein, 2001, Minnie et al, 2005). The study by Minnie et. al, (2015), found that paramedics' coping mechanisms, despite the support and debriefing services in Cape Town, were not enough to

sustain their psychosocial well-being while dealing with continuous exposure to stressful and traumatic working environments. Many of the studies conducted in this field have already focused on the trauma debriefing and coping mechanisms used by paramedics. Research in the domain of the competencies needed to be able to cope with and manage these experiences is very limited. It is being proposed by the Health Professions Council of South Africa (HPCSA) that all curricula should have well-defined competencies set out. The South African Emergency Care curriculum does not clearly specify the relevant competencies needed to cope with and manage the possible effects of experiencing trauma. The problem therefore, is that it is not known what competencies should be incorporated in the ILS paramedics' curriculum to enable them to cope with traumatic stress.

Therefore the research question for the study is:

What **competencies** are needed for ILS paramedics to cope with traumatic stress?

The purpose of this study is to develop possible competencies for promotion of the biopsychosocial health of Intermediate Life Support (ILS) paramedics. Competencies as defined by, Frank, Snell & Ten Cate et al, (2010:641) are "the array of abilities across multiple domains or aspects of a physician's performance in a certain context". These abilities change with time, experience and the nature of the setting (Frank, Snell & Ten Cate et al, 2010). Using this definition and applying it to the paramedics' curriculum could benefit the Emergency Care Services Society, considering that ILS paramedics play such an important role in providing emergency health care today. The greater demand for holistically trained ILS paramedics with sound background knowledge of the stressful traumatic working environment justified the need for more effective competencies to deal with the effects of experiencing continuous trauma.

The initial objective was to explore and describe the types of trauma that they experience while conducting their work and the coping mechanisms they presently use to manage their post-traumatic stress. After exploring and describing the effects of the traumatic exposure experienced by ILS paramedics, you, as an expert panel would assist in developing the

competencies that need to be incorporated in their education and training to better manage and promote self-care.

This study focused on ILS paramedics as an ILS paramedic is a critical member of the emergency care services. The standard emergency care services system in South Africa deploys a BLS and an ILS paramedic in an ambulance and deploys the ALS paramedic in a sedan vehicle to provide advanced medical assistance when required by the ambulance crew. This type of set-up usually puts the ambulance crew directly in the front line of any potential harm's way. The ILS paramedic as the senior member of the ambulance crew may be required to assess the prevailing conditions and make a decision about the approach the ambulance crew should take. (www.HPCSA.GOV, 2017). In the ambulance the management of the patients is the responsibility of the ILS paramedic who upon assessment can either downgrade the management to the BLS level or escalate the management to an ALS level of care.

11 ILS paramedics were recruited for in-depth one-on-one interviews from different ambulance bases around Gauteng to represent the 3 different metropolitan municipalities. The interviews took place on the bases in a private venue. The participants in the study were between 24-40 years old (median 27 years old) and had worked as ILS paramedics for between 4-18 years (mean 8.5 years). They all worked for ambulance services as operational paramedics responding to ambulance emergency events. As described by the ILS paramedics, their main day to day job consists of responding to a variety of circumstances such as emergencies such as accidents, other medical emergencies, hospital transfers and home calls for various minor, and sometimes serious injuries, but mainly responding to emergencies were people are severely injured. The results of the findings below reflect the traumatic experience of ILS paramedics in Gauteng only.

The findings are in tabular form and focus on the traumatic stress experienced by ILS paramedics; effects of trauma on their biopsychosocial wellbeing; present coping strategies used; their present educational preparedness and their suggestions of what should be included in their education and training. I would like you to examine these findings and note the competencies needed for biopsychosocial self-care of ILS paramedics, which we will develop further in the focus group discussion.

1) Main sources of trauma experienced by participants	
1.1 Gruesome call Motor vehicle accidents with severe injuries Pedestrians accidents Violent crimes Suicide, especially where there is gruesome bodily harm 1.2 Sensitivity to specific victims Kids Colleagues 1.3 Responsibility to save lives unprepared mentally and practically	
2. Effects of the trauma on biopsychosocial wellbeing	
2.1 emotional effects Sadness,Depression,stress Felt like crying,Angry,Sorry Overwhelmed,Bad,Fear,Grief Scared,Traumatized,Helplessness,Aggression Irritated 2.2 Physical effects Fast heart beat Shaking 2.3 effects on social relationship avoidance	
3) Coping strategies	
3.1 Positive strategies Informal peer debriefing and emotional support from colleagues More formal emotional support from counsellors and chaplain Light relief through games and humour at work and outside of work 3.2 Negative strategies Avoidance, outrages bursts, drinking,	
4a) inadequate education and training	
4.1 educators and content Unprepared lectures Talks and advices Quick crash course 4.2 learning &assessment No assessment Lack of knowledge about counselling Lack of counselling skills in order to support the community	
4b) Suggestions for what should be included in their education and training	
Adequate information from training personnel Transparency from training personnel on	

what to expect in the field To be equipped with effective coping mechanisms More knowledge on counselling and attitudes towards counselling that negate the stigma and judgements related to counselling Counselling skills to support those directly affected by violence, their families and community	

APPENDIX 4: Demographic characteristics of study Participants

Participant	1	2	3	4	5	6	7	8	9	10	11	TOTAL
Age of participant:												
24 years				X								1
25 years			X		X					1		3
27 years		X						X				2
30 years	X					X						2
32 years										X		1
38 years									X			1
40 years							X					1
27 years	Median											
Race												
Black		X			X		X	X		X		5
White	X		X	X		X			X		X	6
Gender:												
Female			X	X	X				X		X	5
Male	X	X				X	X	X		X		6
Years of experience in the field:												
4 Years					X							1
5 Years			X	X		X						3
6 Years											X	1
8 Years	X							X				2
10 Years		X								X		2
15 Years							X					1
18 Years									X			1

8.5 Years	Mean											
Areas where stations are based:												
Pretoria	X				X				X			3
Sandton		X										1
Kempton Park			X									1
Vaal				X			X					2
Ekurhuleni						X						1
Mamelodi								X				1
White City										X		1
Germiston											X	1

The participants were between 24-40 years old (median 27 years old) and had worked as ILS paramedics for between 4-18 years (mean 8.5 years).They worked for an ambulance service as operational paramedics responding ambulance emergency events. They were recruited from different ambulance bases around Gauteng to represent the 3 different metropolitan municipalities